

The United States MILLER

AND THE MILLING ENGINEER.

Fifteenth Year.—No. 4.

MILWAUKEE, APRIL, 1890.

Subscription Price, \$1.00 Per Year.

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Milwaukee Bag Company,

— MANUFACTURERS OF —

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Farrel Foundry & Machine Company,

ANSONIA, CONN.,

Sole Manufacturers of the Celebrated



ANSONIA ROLLS FOR USE IN ROLLER MILLS.

The general experience of American Millers unites in pronouncing these rolls the very best for Flouring Mill use.

These Rolls are now used in all Leading Flouring Mills

Chilled Rolls for Paper Mills a Specialty.

Mention this paper when you write to us.

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Is now ready for delivery. Price Ten Dollars. It is the most complete of any we have ever published, and possesses many new and valuable features. Send in your orders *now*.

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.. THAT THE ..

RICHMOND

Grain Cleaning Machinery

— AND —

BRAN DUSTERS

Are the Best in the World.

MANUFACTURED BY THE

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THE

U. S. A.

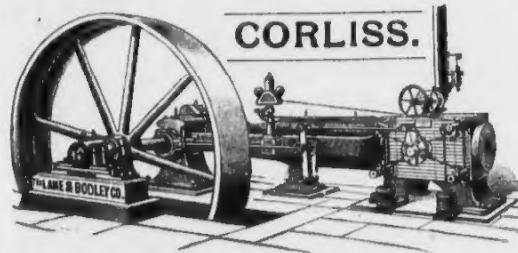
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THE LANE & BODLEY CO.,

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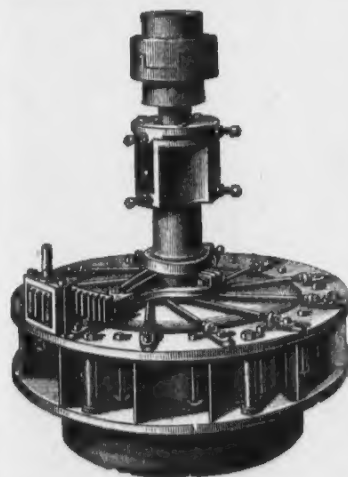


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From Heavy Patterns and of Unexcelled Workmanship.

Steel Boilers, Feed Water Heaters, Shafting, Pulleys and Gearing.

THE LANE & BODLEY CO., cor. John & Water Sts., CINCINNATI, O.



Leffel Water Wheel

Made by JAMES LEFFEL & CO.

The "OLD RELIABLE" with Important Improvements, making it the

Most Perfect Turbine now in Use.

Comprising the LARGEST and the SMALLEST Wheels, under both the HIGHEST and LOWEST Head in this country. Our New Illustrated Book sent free to those owning water power.

Write us for NEW PRICES before buying elsewhere. New shops and New Machinery are provided for making this Wheel. Address,

JAMES LEFFEL & CO.,

Springfield, Ohio, or 110 Liberty St., New York.

"WESTERN" MILL SHELDER.

The most Compact, Durable, Best Sheller and Best Cleaner.

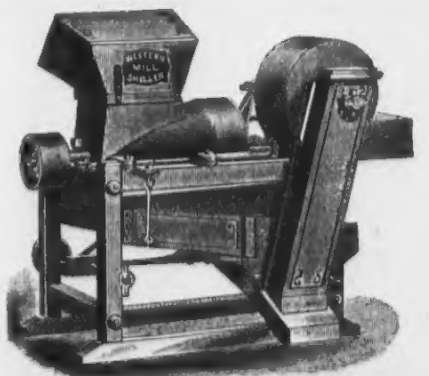
Takes up but little room, runs at low rate of speed, requires no attention. It is in every respect the

Best Sheller ever offered to the Public.

Please mention this paper. Write for full particulars to

UNION IRON WORKS, - DECATUR, ILL.

Mfrs. of "Western" Shellers, Cleaners, Separators, and all kinds of Elevator Machinery.



THE EDW. P. ALLIS COMPANY

❖ Mill Builders and Mill Furnishers, ❖

RELIANCE WORKS,

MILWAUKEE, WIS.

Gray's Noiseless Belt Roller Mill.	<p>Known and recognized as the Standard the world over. More than 35,000 pairs of Rolls in use in Gray frames. More in use in Minneapolis than all others combined. The original Solid Iron Frame and Noiseless Belt Drive. The best adjusting devices. The best Shaker feeder. All the latest improvements.</p> <p>Don't buy inferior machines because they are cheap.</p>
Gray's Improved Centrifugal Reel.	<p>Perfect separations, great capacity, light running, handsome design, fine finish. All driving connections and oil holes outside of frame. Inside of reel free from complicated gears, tipping buckets and other abominations. A perfect combination of simplicity, strength and durability. It costs little, if any, more than poorer ones. Put it in your mill, and it will win your friendship.</p>
Gray's Patent Flour Dresser.	<p>Used in ALL of our mills for the last 3 years, and the first word of complaint is yet to be heard. 8 ft. machine does the work of old style 16 ft. or 18 ft. reel, does it better, does it with less power, and takes up less room. Guaranteed to be unequalled by any similar machine, and will speak for itself, if you give it a chance. Sold at reasonable prices, and payment not expected if it does not do as well as any other flour dresser. If it does better, you will soon find it out.</p>
The Reliance Purifier.	<p>"We consider the Reliance Purifier the best purifier in the market at the present time."—WASHBURN-CROSBY Co., Minneapolis, Minn.</p> <p>"We never saw anything better."—LA GRANGE MILLS, Red Wing, Minn.</p>
The Reliance Sieve Scalper.	<p>This is a machine with which we wish our customers to become well acquainted. It has all the essential qualities of a perfect machine—perfect separations, immense capacity, almost runs itself, takes little room, and will improve the results in any mill. One machine will handle one break in a 1000 bbl. or five breaks in a 200 bbl. spring wheat mill, and just as perfect work on winter wheat. We use them in all our latest mills, large and small, and no machine we have ever brought out was better received by millers. If you are using the old style scalpings, it will pay to investigate this.</p>
The Beall Corrugation.	<p>By special arrangement with Messrs. Frank Beall & Co., we are the only mill furnishing establishment in the country authorized to equip mills with this corrugation. It is used and endorsed by many of the largest and best known mills in all sections, and possesses features of undoubted excellence that commend it strongly to experienced millers. Specially adapted to the first, second and third breaks. Circulars, testimonials and full particulars on application.</p>
Complete Mills of Any Capacity.	<p>Our facilities are without doubt the largest, experience the most extensive, machines the best and most favorably known, record the most uniformly successful, and consequently our work is the most reliable. Building a mill is a venture that takes money, and it pays in the end to trade with a reliable establishment that furnishes only work of the best quality, offers none but reasonable guarantees, and has the means to make its guarantees good. Prices little, if any, higher than you have to pay for inferior work, results are certain, no experimenting at purchaser's expense.</p>

MACHINES IN STOCK FOR PROMPT SHIPMENT.

CATALOGUES, PRICES AND ESTIMATES ON APPLICATION.

The United States MILLER

AND THE MILLING ENGINEER.

Fifteenth Year.—No. 4.

MILWAUKEE, APRIL, 1890.

Subscription Price, \$1.00 Per Year.

THE JONATHAN MILLS UNIVERSAL AIR-BELT PURIFIER.

United States Miller:

GENTLEMEN—We wish to call the personal attention of every operative Miller and Millowner in the land to this wonderful invention, and take this our first opportunity since its perfection to avail ourselves of presenting illustrations and descriptions of it through your valuable paper.

The purification of middlings is a well-understood problem through the old methods of purification by sieve machines. They are well-known, cumbersome power-eaters, imperfect, wasteful and unsatisfactory necessities. Their wastefulness is notorious in every mill using them, no matter how well equipped with dust-catching devices, that don't catch. The problem has not been so much how to purify middlings as to how to catch the impurities that are taken out, and to take care of what the myriads of so-called dust-catching devices catch and don't catch. The sweeper and the surrounding neighborhood manage in one way and another to corral what the dust-catching device lets slip by, but what the dust-catchers do grab onto is neither flesh, fish nor fowl. You are kind of sorry you caught it, but straightway go and buy the very next new dust trap that comes along, not that you want the dirty old stuff so much as to show that you will catch it or "bust."

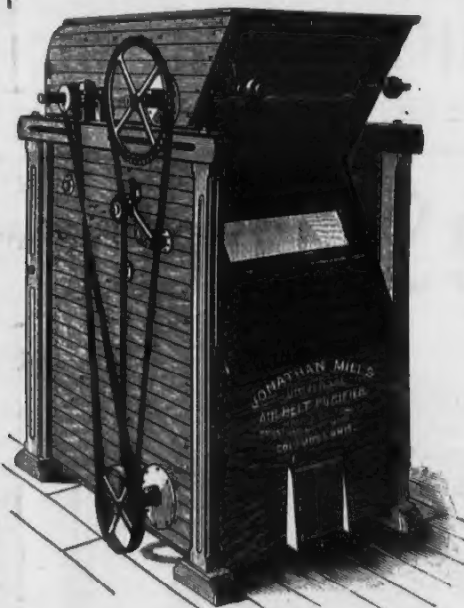
With these new machines the dust problem is now forever settled with all who adopt them. We do not care to enter into a long, fulsome article in describing the many advantages these machines possess over sieve purifiers. The fact of their having no bolting cloth, nor cloth of any kind, and no additional dust-catcher outside of the machine, and the fact that they use their air over and over continuously within the machine, neither taking air in or letting air out, and the further important fact of purifying all and every grade of middlings from the coarsest to the finest as perfectly as can be done on any sieve machine ever built, with as great capacity as the very largest sieve machine can handle, and will handle any fluctuating quantity from a full load to a pound without changing a revolution or moving a valve after once setting for the grade to be purified, are surely points that will seriously interest every first-class miller and owner of mills. However, the above but half tells the importance of the invention. We have a full system of these machines at work here in Hardesty Bros.' 500 barrel mill. They have displaced seven large sieve purifiers and two aspirators, saving an immense amount of power that was required to drive the sieve purifiers and dust collectors. They had tried every known dust collector, and about eight months ago they expended about two

thousand dollars for putting in a Washburn Dust House, requiring two immense fans to operate this dust house. We have displaced all this with eight of our Air-Belt Purifiers and one grader, and the power required to drive is less than was required to drive one sieve purifier. The floor space required is 36 inches wide, 48 inches long and 5 feet 9 inches in height. All grades of the flour are greatly improved, all of which we will take great pleasure in showing to millers who may visit us. The full system has been in operation here about a month. Every one is in love with the machines and system that sees them at work. We are here to show the full system, and most cordially invite all millers to come and see. It will prove the most profitable investigation you have ever made.

THE JONATHAN MILLS MFG. CO.,
Columbus, O.



REAR VIEW.



FRONT VIEW.

JONATHAN MILLS' "UNIVERSAL" AIR-BELT PURIFIER.

ENGLISH versus FOREIGN MILLERS. BY A SCOTCH BAKER.

THERE appears to be no reasonable doubt but that the number of flour mills at work in the United Kingdom has, for some years, been declining, but it is not generally known that the quantity of flour manufactured in this country has been as nearly as possible stationary for the past decade, and it is only during the past few months that there has been a tendency towards an increase in the production of flour in the United Kingdom. From the "Trade Items" columns in our esteemed contemporary *The Miller*, for the past eighteen months, it is evident that a considerable amount of money has been spent in remodeling mills and increasing their capacity, and we should estimate that the capital expended from 1879 to the present time is close upon £8,000,000 in the introduction of improved methods of manufacture. This large expenditure of money in improving the mills and adopting labor-saving appliances has necessarily made a large and striking decrease in the number of flour mills as well as the number of operative millers employed. Taking the whole of the United Kingdom it appears that in the year of 1880 there were 10,450 flour

mills at work, whilst in 1887 that number was reduced (in seven years) to 8,820, and at the present time there are not more than 8,450, which numbers would include every little wind or water gristing mill as well as the pair of millstones used by the farmer who may have them fixed to grind his cattle food. According to the above figures it is evident that some 2,000 mills have ceased to exist during the past ten years; and it must be borne in mind that during these years roller mills have sprung into existence. It might be of interest at this juncture to mention that according to the census returns for England and Wales, prior to roller mills there were for the periods 1851 to 1881 the following number of millers (masters and men together):

1851, Population, 17,927,000.....	Millers, 36,076
1860, " 20,066,244.....	" 31,639
1871, " 22,712,203.....	" 29,720
1881, " 25,174,439.....	" 23,462

The above table shows that from 1851 to 1881 the population increased 8,046,830, and the number of master and operative millers combined became fewer by 12,614. The population of the United Kingdom in

were as follows: Total in cwt., 15,835,192 in 1885; 14,739,232 in 1886; 18,056,545 in 1887; 16,912,773 in 1888; 14,699,201 in 1889; so that the millstone mills at work in the United Kingdom supply more flour for bread-making than is imported into the country. When it is taken into account the quantity of flour that is used in other industries, besides that required for human food, it is still more surprising that the foreigner does not send over a larger proportion of his manufactured product; but is a well-known fact that a great quantity of the flour sent from America is not fit to be made into bread, but is utilized in a number of ways, such for example as an adulterant for linseed cake for cattle-feeding purposes, when it can be bought for £5 per ton and sold for £7 10s. We are perfectly aware that a large quantity of flour is required for "dressing" purposes in the manufacture of calicos and such like cotton goods, but until recently we were not aware that low grade flours were used in the manufacture of brown paper. When we asked for what purpose it could be used in a brown paper mill we were astonished to hear that it was very useful when made into "paste," to hold heavy material matter in the brown paper pulp. It will be seen from the foregoing remarks that the milling industry in this country is not only on the mend, but has never been seriously threatened by the large imports of American flour.—*British and Foreign Baker and Confectioner.*

RELIEF FOR THE U. S. SUPREME COURT.

A measure providing for the much needed relief of the Supreme Court has at length been matured by the Judiciary Committee of the House of Representatives. Speaking broadly, the bill aims to relieve the Supreme Court by vesting in the District Courts the present jurisdiction of the Circuit Courts, and constituting the latter courts of appeal whose determination will be final in a large number of cases which now go to the Supreme Court. In addition to reviewing cases coming up from the District Courts, the Circuit Courts are also given appellate jurisdiction over judgments of the Supreme Courts of the territories. Appeals are not allowed to the Supreme Court from judgements of the Supreme Court of the District of Columbia, except in cases where the United States, or an officer thereof, acting in his official capacity is a party, or when the adjudication involves the construction of a treaty or law of the United States. The findings of the Circuit Courts on all questions of fact are made final, and their judgments are made conclusive in all cases in which jurisdiction is acquired by the District Courts by citizenship of the parties only, and in which no question arises under the Constitution, laws or treaties of the United States, unless the Circuit Court or two judges thereof certify that the question involved is one of such novelty, difficulty or importance as to require a decision by the Supreme Court. Provision is made for the removal from the Supreme Court to the Circuit Courts of cases of which the latter have final and exclusive jurisdiction. Each Circuit Court is to be composed of the present Circuit Judge and two others, to be appointed by the President.—*Bradstreet.*

the middle of 1889 was estimated at 37,808,892 persons—29,015,613 in England and Wales, 4,077,070 in Scotland, and 4,716,209 in Ireland.

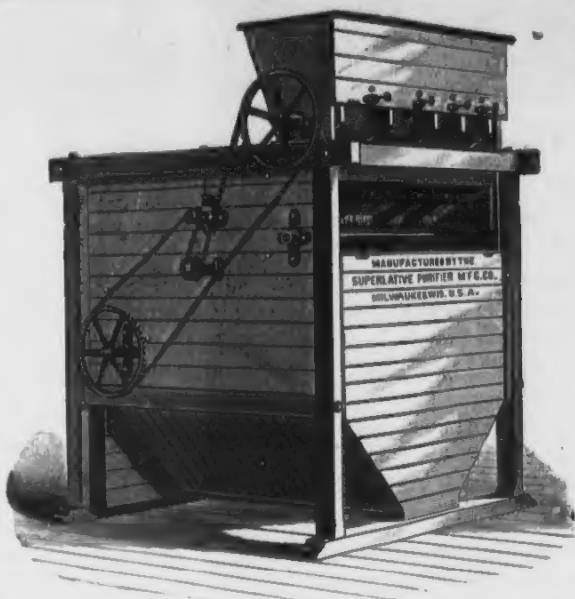
The number of roller flour mills now in the United Kingdom are 540, producing over 26,500,000 sacks of flour per annum; but how much flour is produced by the remaining 7,910 millstone mills it is impossible to ascertain. We may, however, assume that 3,800 of the 7,910 millstone mills do not produce any flour to speak of, but only do gristing work for cattle feeding. To find out the quantity of flour produced by the millstone mills we must take the old-fashioned way of estimating it, which is, that one person eats a sack of flour of 280 lbs. per annum; so, as the population of the United Kingdom is about 37,808,892 the amount of flour consumed by the inhabitants of Great Britain should be 37,808,892 sacks of 280 lbs. If we take from the total number of sacks required the 26,500,000 produced by the roller mills in this country we have a balance of over 11,000,000 sacks of flour, which are contributed by the millstone millers and the foreigner combined. We know from the imports into the United Kingdom during the past five years that the quantities of flour received from the different countries

THOROUGHLY TESTED AND FOUND JUST AS REPRESENTED.

THE NEW ERA SCALPER

(Manufactured under Patents No. 490,728, 490,802, 490,808.)

Does not scour the bran or pulverize middlings, increasing 'patent' flour and improving other grades.



Occupies small space. Requires little power. One machine will handle 4 breaks in 100 bbl. mill.

Has greater capacity and does better work than any other Scalper manufactured.

GUARANTEED IN EVERY RESPECT. TRIAL ALLOWED

MILROY, IND., January 20th, 1890.

SUPERLATIVE PURIFIER MFG. CO., Milwaukee, Wis.:

Gentlemen—Enclosed find balance due you on New Era Scalper and Bran Duster I bought of you some time ago. The machines have been running daily now for five months; require very little attention, if any; run very light, requiring scarcely any power, and their work in general is entirely satisfactory in every respect—just as represented by your agent.

Respectfully yours,

G. J. BICKHART.

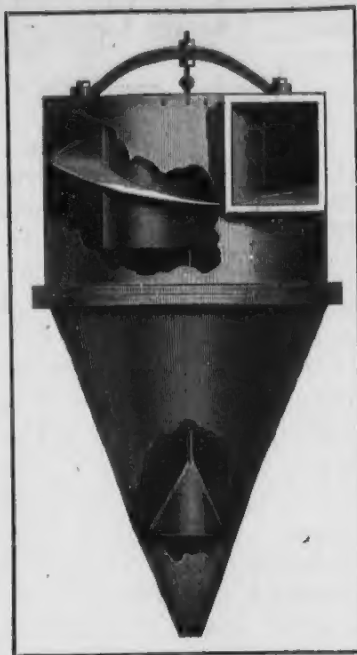
FOR CATALOGUE, PRICES, ETC., ADDRESS

SUPERLATIVE PURIFIER MFG. CO.
MILWAUKEE, WIS.
VORTEX DUST COLLECTOR

The best and most successful Dust Collector manufactured for Purifiers, Grain Cleaners, etc.

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WE OWN PATENTS
COVERING THIS
COLLECTOR, AND
GUARANTEE
EVERY USER AND
PURCHASER
AGAINST ANY
INFRINGEMENT
SUITS, SHOULD
ANY BE BROUGHT.



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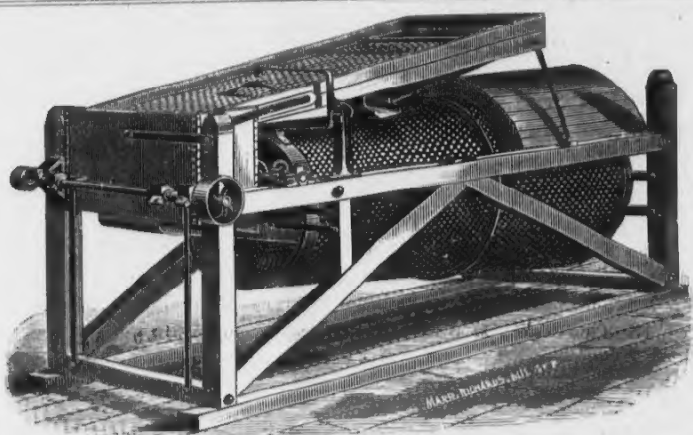
THE WORK OF
THIS MACHINE IS
GUARANTEED,
AND WE
WILL ALLOW
ANYONE TO TEST
IT THOROUGHLY
BEFORE
PAYING FOR IT.

O O O O O O O

PRICES VERY REASONABLE.

No royalty has been collected on any Dust Collector of our manufacture. We challenge anyone to name an instance.

FOR CIRCULARS, PRICES, ETC., ADDRESS

VORTEX DUST COLLECTOR CO.,
MILWAUKEE, WIS.
Kurth Cockle Separator

Manufactured in three styles, either with or without Oat Separator attachment.

Thousands in use in all parts of the country. We guarantee these machines in every respect, allow trial where desired.

Our long experience in this line enables us to make a machine which is unequalled for thorough and effective work.

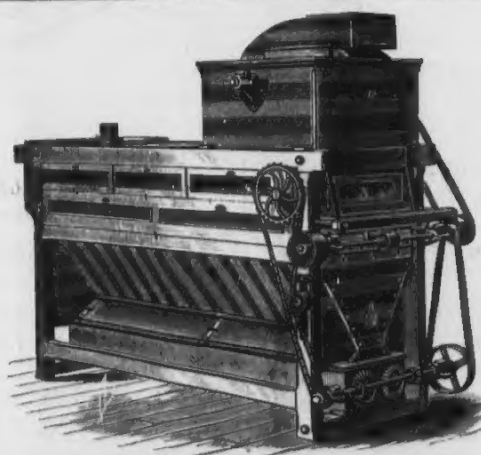
FOR CATALOGUE, PRICES, ETC., ADDRESS

COCKLE SEPARATOR MFG. CO.,
MILWAUKEE, WIS.

WE ALSO MANUFACTURE

THE MORGAN SCOURER**The Superlative Purifier**

Has been on the market for over five years and is running in hundreds of mills, and giving the best of satisfaction.



Guaranteed to do as good work as any Purifier manufactured.

WELL BUILT AND FINISHED. PRICES VERY REASONABLE.

We will allow any responsible miller a thorough trial of this machine. Its work speaks for itself.

FOR CATALOGUE, PRICES, ETC., ADDRESS

SUPERLATIVE PURIFIER MFG. CO.,
MILWAUKEE, WIS.

UNITED STATES MILLER
AND THE MILLING ENGINEER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.
Office, No. 194 Grand Avenue, Milwaukee.
SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.
To American subscribers, postage prepaid..... \$1.00
To Canadian subscribers, postage prepaid..... 1.00
Foreign subscribers..... 50.
All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.
Bills for advertising will be sent monthly, unless otherwise agreed upon.
For estimates for advertising, address the UNITED STATES MILLER AND THE MILLING ENGINEER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, APRIL, 1890.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER AND THE MILLING ENGINEER. You will thereby oblige not only this paper, but the advertisers.

WE send out a number of SAMPLE COPIES of this issue. We solicit a critical examination of our Journal and invite you to subscribe. The price is one dollar per year. No premiums—no discount.

THE Dominion of Canada Millers' Association met in Toronto, April 1, and discussed a number of subjects of interest to Canadian millers.

WHERE is the voluminous correspondence from ardent admirers in recent numbers of the *American Miller*? We hope nothing we have said has caused the "old lady" to lay down on her old time customs.

MICHIGAN, Indiana and Ohio millers should bear in mind that the Tri-State Millers' Convention will be held at Fort Wayne, Ind., May 13. Extensive arrangements are being made to receive and entertain visitors.

MR. J. SANFORD, of B. F. & J. Sanford, manufacturers of water-wheels at Sheboygan Falls, Wis., called on us recently and reports business first class. By the way, they have doubled their advertising space in this journal. See page 63.

THE *Michigan Farmer* says: Geo. T. Smith, of middlings purifier fame, has arranged with several capitalists to continue the manufacture of purifiers and other milling machinery, and will build shops on the east side of Jackson this summer.

FRANK BARRY, Secretary of The Millers National Association started for Washington April 14, to look after the tariff bill in respect to obtaining free jute and other matters of great importance to the millers. We trust his mission will be entirely successful.

A PARTY in Kansas wishes a mill built at his place and states that he will donate \$2,000 in cash and a mill site to any practical miller who will come there and put up a good 40 barrel mill. Parties meaning business, can obtain further particulars by writing to The Edward P. Allis Company, Milwaukee, Wis.

AND now the *American Miller* has taken to clipping editorials from the *Milling World* and inoculating herself with them in conspicuous places, vide pages 171 and 180 of the March issue. The vaccination did not seem to take, however, as no original sore spots are observable on the "old lady's" person. Ye Gods! what is the matter with her?

WE beg leave to call the attention of readers of this journal to the fact that each number contains more original matter of an interesting and valuable nature, than any single number of any milling journal published in the world. If you doubt it we only ask you to compare

other journals with it. Its selected matter is the best that can be culled from the best journals in this country and abroad.

A NORTH DAKOTA farmer thinks he has discovered a way of raising wheat that will make six pounds of seed on an acre raise fifty bushels. He tried it last year and got three times the yield that his neighbors did, and this year he is going to put in 200 acres in the same way. His plan is to plant it something like corn and cultivate it through the summer.

THE Millers of Ohio and Michigan are invited to meet with Indiana Millers in tri-state convention at Fort Wayne, Ind., Tuesday, May 18. The city authorities and the Business Men's Exchange of Fort Wayne have formally assured the millers a cordial welcome to their city, and a generous hospitality. Reduced fares on railroads are assured. The Associations of Ohio and Michigan have formally accepted the invitation. The National Association will cooperate.

THE executive committee of the Pennsylvania Millers' Association have determined to defend the patent suit brought against Joseph Bosler, of Ogontz, Pa., by John S. Detweiler, on the claim of the latter for infringement of his patents on gradual reduction milling. Pennsylvania millers are being urged to join the Association and fight the suit to the last, and Secretary Landis Levan is laboring diligently to secure a strong defense, which it is believed can be done. Millers however, will suffer the annoyance of a suit.

WE take pleasure in presenting to our readers in this number illustrations and description of the new "Air Belt Purifier" invented by Jonathan Mills and manufactured by the Jonathan Mills Mfg. Co. of Columbus, O.

Mr. Mills has been working at this machine for over five years, and has spent a great amount of money to bring it to the degree of perfection that he deemed necessary in this advanced stage of the milling art. Mr. Mills as well as millers who have had the privilege of examining this machine, express the opinion that it will create such a revolution in milling plants as has not been seen since the introduction of middlings purifiers and roller mills. A well-known milling expert who has investigated this wonderful machine says, its value is unquestionably very great and that every mill of any importance will introduce it as soon as they realize its value and can get an order filled.

The writer has not seen the machine and knows nothing of its interior construction, but does not doubt the fact that Mr. Mills has produced a machine well worthy the careful attention of modern millers.

IT has been thoroughly and practically demonstrated, that State Associations of millers which meet but once a year, soon become poorly attended. The members get so that they feel that if they pay their dues their officers will look after everything necessary and they can save themselves the trouble and expense of attending the annual meetings. This is a selfish way of doing things. It is very discouraging to the officers.

To our way of thinking, State Associations should meet as often as four times a year. The State should be districted and the District Associations should meet monthly to discuss local affairs. At State meetings due preparations should be made to have suitable papers on milling subjects read and discussed, and all matters of interest fully made known. In this way millers would be drawn together often and would see the benefits to be derived from cooperation. Soon every miller would go to these meetings prepared to say something, as well as to hear others talk. We have

often observed at millers' meetings, that it seemed difficult to get business discussions started. When they once get started however, they can talk as well as any other class of business men, and bring out bright ideas worthy of careful consideration. An intelligent, active, never-tiring secretary is indispensable and generally earns far more than his modest salary calls for.

IT is a fact admitted by totally unbiassed authorities that American flour mills and their products are far superior to European. There are good mills turning out first-class products in various parts of Europe, but the construction of the milling plants is such, generally, that they do not compare in point of economy of operation with American mills. Were it not that labor is cheap, the best mills in Budapest could not begin to compete with us. The adoption of labor-saving devices is carried almost to extremes here, while there every such device is looked upon with suspicion by both employer and employee and adopted only after long and patient observation; but competition has had its effect and it is not now so difficult to introduce new milling machinery as a few years back.

We have also in this country, a good many "old fogies" who love to discuss in the columns of superannuated milling journals such "chesnutty" questions as: "Are rolls better than millstones?" or "Does water run faster in the night than in the day-time?" or "How shall we get rid of crease-dirt?" and so on. This class of men are content to growl and worry along with a lot of old machinery and customs obsolete with modern business usage. They are chronic obstructionists to progress. They should wake up, join the procession of advanced millers, or get out of the trade.

THE *American Miller* has evidently reached its *ultima thule* of value in the minds of its publishers and with a desire to ring more dollars from long suffering subscribers, their constipated faculties after suffering the pains of long continued labor, have evolved a proposition ludicrous indeed to the intelligent reader, but bearing plainly either the marks, of senile debility or a bungling attempt to catch gudgeons by a sort of "flim-flam" game, in which an unsuspecting victim is persuaded to pay for a thing, not only its customary price, but a big bonus besides. We clip the following from a leading editorial in the April number of the *American Miller*:

"We have decided to issue life subscription certificates. Those who send us fifteen dollars at one time will in return receive a certificate entitling the party sending the money to receive the *American Miller* for life, postage prepaid.

After reading the above, just figure up the simple interest on \$15.00 at seven per cent., and you will readily see that by purchasing one of these wonderful "life certificates," the paper will cost you far more than the regular price. The best policy to pursue in subscribing for any periodical, is to subscribe for a year at a time. If its policy don't suit you, you can stop it and at the most lose less than a year's subscription price.

Taken all in all, this proposition is, we believe about the worst "break" we know of in ancient or modern journalism.

WE regret to say that S. H. Seamans has resigned all connection in an official capacity with millers' associations, both State and National. He has served as secretary of the Wisconsin Millers' Association continuously since 1876; as member of the executive and sub-executive committees of the Millers' National Association since 1877, and as secretary of the Millers' National Association since 1878. He has devoted his time, money, labor, talent, quick perceptions and clear judgment to the best interests of millers,

not only when he was actually engaged in the milling business himself, but since he went out of that business. There is no honor within the gift of millers, members of either the State or National Associations, that they would for a moment hesitate to confer upon him. He wants nothing—he expects nothing but the warm regard and respect of those he has served so long and faithfully, and which he so well merits. He has fought their cause, suffered personal abuse from unscrupulous or deluded milling journals, for their sake, but has serenely lived through it all, and has seen the boomerangs thrown at him, invariably, return with redoubled force, and strike their projectors. His record is unimpeachable, his integrity unmarred, and his course of action unanimously vindicated. He can afford to rest upon the laurels he has so hardly won.

In saying this, we do not wish to detract one iota of credit from any other officer or member of the association, many of whom have served valiantly and well for millers' interests, but the execution of matters of importance, as well as often the conception of a proper method of action, invariably falls heaviest on the secretary.

Mr. Frank Barry has shown himself to be a fitting successor of Mr. Seamans as secretary of the National, and we feel beyond a doubt that Mr. L. R. Hurd, who succeeds him as secretary of the Wisconsin Association, will make a first-class officer.

MILWAUKEE REVIEW.

THE markets, mill furnishing and milling business of this city has been of a rather holiday character during the past month, if we except the last week, in which the wheat market seemed to have fallen into the hands of strong operators, and a corner in May wheat has made it lively for the shorts, and the longs or "Bulls" are having their dance. However the operators in the real grain and its products have not yet felt any material benefit. In fact it is out of the question to buy wheat on present basis and expect to get their money back out of the flour and feed.

European cities have full stores, and an immense quantity afloat, and awaiting orders. They cannot under such circumstances be expected to follow our markets. It is only our own speculatively-inclined people that are bidding up any on flour.

Our mills are pretty much all idle or running on short time to fill domestic and local orders. And they are quite likely to continue so the balance of this crop year, unless our foreign buyers become uneasy over the statistical condition of the coming crop.

According to our government report the growing wheat crop of this country will not equal by several millions the crop of 1889. Winter wheat is placed at 81% of an average crop. It is of course too early to say what may be expected of spring wheat States as they have only just begun to put in the seed; but with the Dakotas short of the required seed, and without anything to encourage the cultivation of wheat, no excessive crop may be reasonably expected.

The action of the Chicago Board of Trade in excluding the telegraph companies from the floor, and refusing to furnish quotations of that market except to actual traders in the cereals, had a wonderful effect on this market. For the time at least, it seems to have accomplished the desired result, that of breaking up the "bucket shops" or grain gambling rooms and throwing the business back into the hands of those who established and maintain the legitimate grain trade. The action of that Board deserves the commendation and support of every honest dealer in grain and its products throughout the country.

DONT.

[From our regular Correspondent.]
OUR BUFFALO LETTER.

SINCE my last letter there has been just one little spurt in the flour market at this point, and that was of the champagne order—a sudden pop! a little life with now and then a bubbling of lonely pent up spirit, followed by flatness compared only to water on a plate. The present condition of the patient is the stage known as the *Katzenjammer* and nearly all our millers have a bad attack of this German disease. Thornton & Chester, the largest city trade millers, have shut down for repairs; Urban's mill is in the same fix; the Banner mills are only running occasionally, in fact about the only big city millers doing anything is the firm of Harvey & Henry, who are filling outside orders. At the Falls, judging from the amount of wheat withdrawn from elevators here for the big mills there, only half the capacity is being worked, but to hear Mr. A. R. James talk, one would imagine he was supplying the Boston trade alone and unaided with the finest patent No. 1 hard-Duluth-Spring-Bridal-Vail. Farnum of Chicago says, "Lon" is an aggregation. They were friends years ago "on the road."

As to prices received for the product of No. 1 hard it is a difficult matter to say when it comes to supplying the outside trade. City prices are \$5.50 for patent spring; bakers' straight \$4.00 @ 4.50. Patent winter, and there is a slight improvement noticeable in this grade, is selling at \$4.50.

The reduction in our stocks of Duluth wheat for the past month has been something unknown in the history of the trade here. New York has been a heavy purchaser, cleaning out the Nos. 1 and 2 Northern and taking all the No. 1 hard we could spare. Of the latter grade there are only 200,000 bushels in store, and only 160,000 No. 1 Northern, against 1,244,000 bushels of the two grades at the same time last year. This, with the exception of 50,000, is owned by millers in Buffalo. Still if the flour trade does not improve there will be enough to go around until the opening of navigation on Lake Superior, which will be early enough to bring down a fresh supply before present stocks are exhausted. At least there is no great anxiety manifested by our millers to take advantage of the low price, comparatively, at which the few lots are being offered. Sales were made at 92½ for No. 1 hard and 92 for No. 1 Northern last week, the wheat coming from country millers' stocks, while sellers here were asking 2 cents more.

The great agitation at present is the attempt by the city of Syracuse to divert the waters of Skaneateles Lake from the Erie Canal. Mr. George Urban, Jr., and Mr. A. R. James are the great agitators on this question, and just why they are interesting themselves so powerfully is a mystery. They are both good men and true to the Merchants' Exchange, and perhaps the fact that very little attention was paid by the legislature to the resolutions passed by the Exchange, denouncing the measure as a menace to the Erie Canal, may have something to do with the case. Syracuse, which is as faithful a friend to the canal and has as much at stake as has Buffalo in that great water route, will not injure the canal. She will get the pure water of Skaneateles Lake for her citizens in spite of Buffalo. Of course this is rank treason and apparently the greatest ingratitude of a Buffalonian toward the canal, but among sensible thinking people this present hue and cry is all rot.

Speaking of the canal there is much to blame at present in its management. Here we are within sight of an enormous grain fleet, upwards of 6,000,000 bushels, and the route to New York closed for the next 15 days. This year the Canal Forwarding Association have taken the bulk of the grain offered at 4 cents on wheat and 3½ on corn to New York, whereas

last year the railroads secured it. But there are only sufficient boats here to carry 2,000,000 and before fresh tonnage can arrive from below the insurance charges and storage will amount to considerably more than the difference in rates between the canal and rail. Such an early opening was not expected and the great Canal Forwarding Combination at this port is in a boat. With such an open winter as we have had the canal should have been ready for business by the first of April. It looks as if the rail would get another crack at the canal.

The trial of Stephen F. Sherman, charged with stealing 8,250 bushels of wheat, resulted in his conviction. Up to the hour that Judge Lambert began his charge to the jury, bets of 5 to 1 were offered that he would be acquitted; when the learned judge had finished, it was a forgone conclusion. The charge was direct against the accused. Although Sherman had placed the money to the credit of the company he was serving, the judge held that the sum in question was misappropriated, having been applied to a different account from that to which it rightly belonged. Not a particle of evidence was adduced, showing that wrong was intended and it puzzles members of the Exchange, not prejudiced against Sherman, to know how a case was made out. "You cannot convict a man on general principals," was the first impression formed, but it appears the judge did.

A. C. Wright & Son have been succeeded by A. J. Wright & Co. The present firm consisting of A. J. Wright, of Buffalo, J. L. Gladwin, of New York, and Charles E. Coon, special, of Washington and New York. A general commission business (and young Wright means business) will be conducted by the new firm at the old stand in the Board of Trade building.

Mr. Pierre Rosseel, for three years past connected with Daniel E. Newhall, principally in the hard wheat trade, will open an office on his own account May 1st. Mr. Rosseel is a straight forward gentleman in business, and is sure of succeeding to his old employers' trade when he sees fit to throw off the harness which he so long has worn.

"Len" Dodge, the North Buffalo miller, is back again from California, looking unusually chipper and refreshed. One noticeable improvement is a decreased rotundity of form about the lower waistcoat button, also a more agreeable shape otherwise. His first purchase was a carload of rye.

Mr. Charles Warfield has been the recipient of many dispatches during the past week, anxiously inquiring about "its weight," "color of hair," and whether he looks like his father. Charlie is proud and don't care who knows it.

The steamer Rhodes came in last fall with a cargo of hard wheat consigned to D. E. Newhall, which on being unloaded was found to be 728 bushels short. Mr. Newhall was willing to pay \$1,312.58 freight, deducting the amount of the shortage, but this the captain would not accept. The vessel brought suit and the referee decided in favor of Mr. Newhall.

The Niagara Falls tunnel scheme is a go, this time. Contracts have been signed between the Cataract Construction Company and the Niagara Power Co., whereby all the rights are turned over to the former. Stock to the amount of \$3,500,000 has been taken. Drexel, Morgan & Co. have a large block, and the Vanderbilts are also interested. Edward A. Weeks is president.

Mr. C. A. Pillsbury was here about two weeks ago, hustling through the town as though his life depended on getting somewhere. When asked, concerning the outlook for prices of wheat, he said: "I'm a bull, but you may lose 5 cents or make 25. Those windy sales in Chicago do not amount to anything. Why the bears there have sold more wheat in the

last week than we can raise in the North-west in a whole crop."

Chicago's action in refusing to send out quotations of its market has not injured the trade here to any extent. Almost full quotations were received by A. J. Wright & Co., also Graves & Rockwell. "Hedging" is now done in New York by hard wheat men, who claim to be even better satisfied than with Chicago.

At the meeting of trunk line agents to hear complaints of millers' and merchants' Mr. F. J. Shuttleworth, of the Banner Milling Co., explained, that it was impossible to unload cars in the 48 hours allowed, when railroads insist on crowding in receipts. When cars are wanted to ship out flour or feed not more than one at a time can be obtained. One effect of Mr. Shuttleworth's speech was to make the agents "go easy" on the grain receivers since.

It is clear to be seen that Mr. George Urban, Jr., is disgusted with reformer "Clint" Newman. Clint takes no interest in the canal, while George does not sleep o' nights thinking of the Jordan level. Wake up, reformer, or you will get left in the next race for president of the Merchants' Exchange—and there is money bet on you.

The "boys" on 'Change have not yet ceased talking and laughing over the following good story, which leaked out, through the hearing at Chicago the other day in the great cash sale of 600,000 bushels of hard wheat to a Buffalo syndicate in March, 1890. Mr. Harper, who had the wheat for sale, testified that "a dapper spruce looking gentleman came into his office early in January last year, or two months before the sale, and asked to look at the wheat. He looked wise, he acted wise, but he was so mysterious that I ordered him out of the office."

Mr. Wallace, of the Cataract mills, was the "wise" appearing gentleman referred to, and from the way the deal turned out he was wise in letting that same wheat alone, for it dropped something like 23 cents per bushel inside of as many days. Besides, Mr. Wallace was not ordered out of the office and his only mysterious actions consisted in giving his business instead of his name when Mr. Harper asked for his card. The facts are that Mr. Wallace gave the owner of the wheat some very valuable information which he was not slow in availing himself of, concerning the "keeping" of the wheat, as some of it was decidedly out of condition; also adding that no firm in Buffalo could pay the price asked and make a dollar on the whole transaction.

Perhaps it was the latter remark which nettled the wheat-seller. Mr. Wallace says the story does not hang together. Buffalo millers, however, are having their little joke on a brother grinder, still it is noticeable that Wallace's laugh is the heartiest and has the more satisfied ring to it.

BUFFALO.

BUFFALO, N. Y., April 14, 1890.

PILLSBURY ON GRAIN OPTIONS.

UNDER date of April 5, Chas. A. Pillsbury, the Minneapolis miller, writes to *Bradstreet's* as follows:

I believe that the system which has come so generally into use in the last four or five years, of selling grain short is more responsible for the present low prices of wheat than all other causes combined. My reasons for believing this are based on both theory and observation. The theory on which I believe it is, that future selling was first established as a means through which a party could absolutely sell for future delivery, wheat he had on hand or had contracted for; that lately, however, the mania for short selling has so increased that probably 99 per cent. of the short sales are not made against actual wheat, but are made by parties who believe they can make money by depressing the market by selling for future delivery. There may be a suffi-

cient number of people who believe in wheat, and are willing and financially able to buy all the legitimate surplus of wheat at fair prices but when they are called upon to buy millions of bushels of wheat which does not exist and to put up margins on the same they throw up their hands in disgust, and down go the markets. Thus it interferes to the detriment of the natural laws of supply and demand.

Now as to observation: I think no one will claim that the crops of wheat for the last five years have been excessive. This is proven by the following facts:

It is well known that almost every miller, both in Europe and America, and every flour dealer and baker used to carry large stocks of grain and flour. If any of these parties now carry stocks of grain and flour to any extent beyond their present and actual needs it is the exception and not the rule.

It is well known that the amount of wheat in sight is less to-day than it has been for many years, and when you take into consideration the fact that Russia, Austria, Australia and South America had very much lighter crops than usual, and no country in the world had a very much heavier crop than usual, it must be evident that the stocks of wheat in farmer's hands or the invisible supply as it is termed must be lighter than usual. It is well-known that the visible supply or amount afloat is smaller than usual in dealers' and millers' hands.

If we admit the above facts, that the stocks of wheat and flour are smaller than they used to be, and that the visible and invisible supply is smaller than usual, it follows of course that the consumption during the last five years has been larger than the production.

All statisticians substantially agree as to the following facts:

First, That the amount of wheat raised during the last five years has not been as large as was raised during the five years previous, and

Second, That the consumption of wheat during the same time has been much larger.

In the meanwhile prices have been ruling much lower. There is no question in my mind that short-selling is largely responsible for this condition of affairs. It used to be a common thing for grain dealers and millers to buy their stocks of wheat when the farmers were parting with their crop very rapidly, just after harvest, and carry the same over until the next spring or summer, and this was almost always done at a profit, but since this short-selling mania has struck almost every speculator in the country the man who does this thing is sure to lose money. Of course there will be an end to this sometime but the question is whether the farmer will not be about wiped out before this relief comes. When it does come it is likely to be rapid and violent. In the meanwhile I cannot escape the conclusion that short-selling is now and has been for the last five years the cause of the extremely low prices that we have seen from time to time.

CATARRH,

CATARRHAL DEAFNESS—HAY FEVER.
A New Home Treatment.

Sufferers are not generally aware that these diseases are contagious, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result of this discovery is that a simple remedy has been formulated whereby catarrh, catarrhal deafness and hay fever are permanently cured in from one to three simple applications made at home by the patient once in two weeks.

N. B.—This treatment is not a snuff or an ointment; both have been discarded by reputable physicians as injurious. A pamphlet explaining this new treatment is sent free on receipt of stamp to pay postage, by A. H. Dixon & Son, 337 and 339 West King street, Toronto, Canada.—*Christian Advocate*.

Sufferers from Catarrhal troubles should carefully read the above.

THE C. C. C. & St. L. Ry. (Big Four Route) is the best line to Philadelphia, Baltimore, Washington, Richmond Va., Old Point Comfort, etc.

[Written for the UNITED STATES MILLER and MILLING ENGINEER.]

MILLING THOUGHTS.

By J. F. MUELLER.

IT is possible for the same person who succeeds in selling a mill outfit against competition at a fair living profit—to also design the flow sheet, as well as the location of the machinery on the various floors, then to superintend the work of putting the machinery in place, and finally start the mill, make a test run, and make a final settlement. There are a great many who claim to be experts of this kind. I say it is possible for one single individual to accomplish all of this, but how coarse and expensive is such a mill, when compared with that in which every step in the progress of production is made the subject of an individual's entire and undivided attention.

An ordinary mechanic's ability is usually gauged by whether or not he has served his time. You may ask any one of our so called experts if he has "served his time." Most assuredly he has—he has served his apprenticeship as a millwright, as a foreman, has been through the draughting room, knows all about milling and making flow sheets, and has been educated up to all the tricks of a traveling salesman. He has "served his time"—a very comprehensive term. Many have served it in the short space of a few years, and hold themselves prepared to take charge of any and all kinds of work that may be in the line of mill-building, or the designing of mills and mill machinery suitable for all purposes. Have they any theoretical knowledge? That, they say, is their one strong point; practical knowledge is but a secondary consideration, the fellows in the workshops will supply all that kind of thing. And this simple thing—practical knowledge—is the very one which ruins all their fine theories, and sooner or later shows them that to get success, they must begin at the bottom.

All well regulated mill furnishing establishments have their corps of millwrights as of old, as well as draughtsmen and millers who are prepared to do the work assigned to them. The day of universal scholars is past. Life is short and art is long. The man who would know one thing well must have the courage to be ignorant of a thousand other things, however attractive or inviting. The man who would get along must single out his specialty, and into that must pour the whole stream of his activity, all the energies of his hand, eye, tongue, heart and brain. Broad culture, many-sidedness, are beautiful things to contemplate; but it is the narrow-edged men—the men of single and intense purposes, that accomplish the most work, and who are everywhere in demand.

To enter a large mill, we find that the work in its various departments is assigned to special men. There are men who never leave the grinding floor. Purifiers are managed by special men, bolting reels as well. The grain bins and wheat cleaning departments each have special men in charge. Thus each man is fitted for a special pursuit, and he directs his energies to bring it to perfection.

Another indispensable element of success is attention to details. In the case of gifted men especially, what cause of failure do we find more fruitful or frequent than that here indicated, the contempt of details? Their souls fire with lofty conceptions of some work to be achieved; their minds warm with enthusiasm as they contemplate the object already attained; but when they begin to put the scheme into execution, they turn away in disgust from the dry minutiae and vulgar drudgery which are required for its perfection.

Of all the employees of a mill-building

establishment, the traveling salesman probably walks the least on roses. Of all the elements of success, none is more vital to him than self-reliance—a determination to be his own helper, and not to look to others for support. The difficulties, hardships, and trials of life, the obstacles one encounters on the road to fortune, help to knit his muscles more firmly, and teach him self-reliance. Much is required of him. He must keep on the alert for new ideas for the benefit of the house he represents. He must keep, at least, abreast of the times and if possible ahead of them. In these days of intense competition, if he expects to achieve a high success, he must think for himself, and above all, cultivate pliability and versatility. He must possess intelligence and original thought. Every territory is filled with bold, keen, subtle-witted men, fertile in expedients and devices, who are perpetually inventing new ways of underselling or attracting custom. The man who sticks doggedly to the old-fashioned methods—who runs in a perpetual rut—will soon find himself outstripped in the race, if he is not stranded on the sands of popular indifference. He learns to keep his eyes open and his wits about him, thereby to distance his competitors.

MILWAUKEE ITEMS.

THE Northwestern Malleable Iron Works were damaged by fire April 7th to the extent of about \$10,000. Fully insured.

MILWAUKEE can now boast of electric street cars. It is said that over 60 miles of track in the city will be operated by electricity before September 1.

THE Milwaukee Chamber of Commerce elected the following officers for the ensuing year. There was only one ticket in the field, and it was elected as follows: President, Oscar Mohr; vice presidents, E. P. Bacon, John Foley, jr.; secretary and treasurer, W. J. Langson; directors, W. P. McLaren, J. H. Crittenden, G. J. Zimmerman; board of arbitration, W. M. Brigham, D. M. Brigham, C. M. Paine, C. Manegold, jr., G. J. Hansen; board of appeals, O. E. Britt, Wm. Sanderson, C. F. Isley, C. F. Freeman, E. C. Wall; grain inspector, F. D. Hinkley; weigher, R. B. Rice.

A GENTLEMAN who is a well-known member of both the Chicago and Milwaukee Boards of Trade, when he was a much younger and poorer man than now, many years ago, had the misfortune of losing his father by the unsparing hand of death. He gave his father an honorable burial, but was, owing to his straightened means, unable to erect a monument to his much-loved paternal relative. However as time went on, he prospered in business and at length redeemed his promise to himself, that if ever he was able he would build a monument to his father's memory. He did so. It was a fine one. When it was complete he took a number of his friends out to the cemetery to see it. They all admired the monument, but those not acquainted with the circumstances were dumbfounded when they read the inscription, which was as follows:

Erected to the memory of
FATHER
who died..... 18.....
Aged 75 Years.
Better late
than never.

TRADE NOTES.

THE Farrel Foundry and Machine Co., of Ansonia, Conn., is completing a building which has a roof of copper weighing 28,000 pounds and costing \$8,360.

"WRINKLES FOR MILLERS" is the title of ane new book just issued by The Nordyke & Marmon Co., Indianapolis, Ind. It gives descriptions with illustrations of a large number of flour mills built by that company.

THE Vortex Dust Collector Co., report a large increase in orders for the past month, and the prospects are very favorable for a continued trade.

SHIPMAN Automatic engines (Kerosene for fuel) are becoming great favorites in country elevators and in some small mills. The Pope Mfg. Co., 291 Wabash Ave., Chicago are the manufacturers.

THE Cockle Separator Mfg. Co., of Milwaukee, have just shipped two of their Improved Round Reels to A. G. Faust, Belleville, O.; and one to B. E. Kroll, Hawley, Minn.

THE Superlative Purifier Mfg. of Milwaukee have recent orders for Purifiers for Atkinson & Peacock, Glen Haven, Wis.; R. B. Skinner & Co., Albert Lea, Minn.; Thompson & Campbell, Philadelphia, Pa.; John T. Beard, Westminster, Md.

B. H. & J. Sanford of Sheboygan Falls, Wis., have just shipped a car-load of the Improved Walsh Double Turbine Water-wheels, including eight different styles and sizes, to their western agents at Portland, Oregon, for the Pacific slope trade.

THE Superlative Purifier Mfg. Co., of Milwaukee, Wis.; have recent orders for New Era Scalpers from the following parties: Stecker, Tompkins & Co., Harmar, O.; Phoenix Mill Co., Marietta, O.; Middleport Flour Co., Middleport, O.; (2 machines); S. F. Neal Gallipolis, O.; C. Seeley Lushton, Neb.; G. H. & A. T. Hotaling, Baldwinville, N. Y.; (3 machines to go into a Cosgrove Mill) Frank Voges & Co., Evansville, Ind.; T. Ault & Son, Bellaire, O.; Theiss, Kuegle & Co., Columbiana, O.; (2 machines); Pierce Mill Co., Pierce, Neb.; Diamond Iron Works Minneapolis, Minn.; Marinette Flour Mill Co., Marinette, Wis.; Creston Milling & Produce Co., Creston, O.; A. E. McNeal, Bowen, Ill.; Braun Bros & Eckes, Wahpeton, N. D. (one 3-high machine); C. B. Dickey & Co., Apple Creek, O.; Novelty Mill Co., Parkersburg, W. Va. (3 machines).

AMONG the recent orders of THE JONATHAN MILLS MANUF'G CO., at COLUMBUS, O., are complete outfits of their FLOUR DRESSERS and SCALPERS for C. Metsch, East Liverpool, O.; Toledo Grain & Milling Co., Toledo, O.; L. D. Rohrer, Cumberland, Md.; C. P. Sides, Salem, N. C.; T. B. Endsow, New Washington, O.; W. J. Close & Co., Venice, O.; Joe C. Barclay & Co., Russellville, Ky.; Gordon, Boyers & Co., Salem, W. Va.; J. C. Bright, Alderson, W. Va.; also a carload of machines for the Jewell Milling Co., at Brooklyn, N. Y., making 85 Mills' Reels now in their mill. Among single orders and orders for 2, 3 and 4 Machines in a place, most of which are repeated orders, are shipments to Kirby & Thomas, Roanoke, Va.; J. G. Bergsten, Lindsborg, Kans.; Munson Bros., Utica, N. Y.; J. G. Patton & Co., Catlettsburg, Ky.; G. W. Yarbrough, Danville, Va.; Dehner-Wuerpel Mill Bldg Co., St. Louis, Mo.; W. L. Kidder & Sons Terre Haute, Ind.; F. A. Vollrath, Bucyrus, O.; Buckeye Mill Co., Marysville, Cal.; W. S. Simmons, Adairville, Ky.; J. H. Gibbs, Edmore, Mich.; A. Keller, Tiffin, O.; Todd Milling Co., Dallas, Tex.; T. J. Comer, Dresden, O.; E. S. Kessling, Rural Retreat, Va.; E. J. Chase, Mt. Vernon, O.; Hirsch & Schoening, Millstadt, Ill.; Nappanee Milling Co., Nappanee, Ind.; Gate City Milling Co., Rapid City, Dak.; Thos. N. Marfield, Chillicothe, O.; The Craig Wheat Cleaner Co., Oxford, Mich.; Knoblock & Ginz Milling Co., South Bend Ind.; C. G. A. Voigt & Co., Grand Rapids Mich.; A. G. Crouch, Harris, Mo.; Jas. Anderson, Chatham, Va.; L. J. Drigg, Ebensburg, Pa.; J. H. Gambrill, Frederick, Md.; Wing Flour Mill Co., Charleston, Ill.; E. K. Bodine, Bristoe, Va.; A. H. Fairchild & Son, Wayland, N. Y.; O. P. Cooper, Greensboro, Pa.; Allen & Wheeler, Troy, O.; J. S. House, Point of Rocks, Md.; G. D. Bush, Gallipolis, O.; J. B. Brennan & Co., Sherman, Tex.; Colton Bros., Bellefontaine, O.; W. A. Falconer, Liberty, Va.; W. E. Brown, Sparta

Ill.; M. A. Roudabush, Grove Hill, Va.; C. C. Shelton, Chattanooga, Tenn.; Wm. Peterson, Perrinton, Mich.; Rogan & Lambertson, Santa Anna, Tex.; Wm. P. Underwood, West Union, W. Va.; Cline & Co., Mt. Sidney, Va.; Barry Milling Co., Barry, Ill.; Peter Miller, Ferdinand, Ind.; Miller, Jones & Co., Prospect, O.; Fresno Milling Co., Fresno, Cal., 2 car loads.

MISSOURI MILLERS.

THE North Missouri Millers' Association met in Moberly, Mo., March 11, 1890, with President Wm. Pollock in the chair, and J. H. Wayland, Secretary. Twenty-five members were present. Two new firms joined, viz: The Browning Mill Co., and Batts & Webster, Hale, Mo. Members reported less wheat in farmers' hands than at this time last year, and an increase in acreage for this year's crop of 40 per cent.

The following resolution was adopted:

Resolved, That we petition our Representatives in Congress and the Senate, to use their influence to have raw jute placed on the free list.

Various subjects of interest were presented and discussed, much interest being manifested.

At the evening session Mr. John Mummet read an essay entitled: "The Laws of Combustion and Advantage of proper construction of Steam Boilers."

After which the meeting adjourned to meet in Moberly, at Florence Hotel, Tuesday, June 10th, 1890.

THE NEED OF GOOD COUNTRY ROADS.

College professors, civil engineers, and magazine writers are directing public attention to the subject of country highways, and the Vanderbilt University, Tennessee, has gone so far as to provide for the free instruction in road engineering of one person from each county in that State. The Baltimore Sun, which is agitating the question in Maryland, points out that the power required to draw a wagon weighing, with its load, one ton on a level, macadamized road of broken stone is sixty-five pounds, which is increased to two hundred pounds on a common dirt road. Prof. Ely, of Johns Hopkins University, estimates that poor roads cost the farmer, on an average, \$15 per horse, and Prof. Jenks, of Knox College, Illinois, argues that with good permanent roads, freight could often be hauled ten miles on wagons cheaper than it could be taken one mile on a dirt road to a railroad station, unloaded, put on the cars, and carried to its destination. Of the social influences of good roads, he says that "a large part of the mental inspiration of the farmers depends on their ability to attend church lectures, concerts, and social gatherings at a distance; and really good roads, by enabling them to go so much more easily, would doubtless raise the whole intellectual tone of the farming community, besides keeping within the healthful influence of the farm many who are now forced into the towns."

A NEW METHOD OF TREATING DISEASE.

Hospital Remedies.

What are they? There is a new departure in the treatment of disease. It consists in the collection of the specifics used by noted specialists of Europe and America, and bringing them within the reach of all. For instance the treatment pursued by special physicians who treat indigestion, stomach and liver troubles only, was obtained and prepared. The treatment of other physicians celebrated for curing catarrh was procured, and so on till these incomparable cures now include disease of the lungs, kidneys, female weakness, rheumatism and nervous debility.

This new method of "one remedy for one disease" must appeal to the common sense of all sufferers, many of whom have experienced the ill effects, and thoroughly realize the absurdity of the claims of Patent Medicines which are guaranteed to cure every ill out of a single bottle, and the use of which, as statistics prove, has ruined more stomachs than alcohol. A circular describing these new remedies is sent free on receipt of stamp to pay postage by Hospital Remedy Company, Toronto, Canada, sole proprietors.

[From our regular Correspondent.]

LONDON LETTER.

FARM work is well in hand and the area under spring corn is probably larger than usual at this date, although the month of March has seen the extremes of weather changes. The first few days of the month were very frosty, whilst on Friday last the heat was equal to that of a summer day, the buds on the trees answering to sunshine of 80 degrees and 65 degrees in the shade. However the main wheat crop, sown from October to the end of December is in fairly good condition without being premature in growth. On the several Corn Exchanges in the United Kingdom much attention is being paid to the reports of the American growing crops, as no doubt any adverse influences would be sufficient to affect prices in favor of sellers. Russia has now open ports and it was reported on Mark Lane last Monday that the Azina or winter wheat has passed through the last three months, in the majority of districts, in a very satisfactory state. Good reports are also to hand to-day from Central Europe, while previous favorable notes of the French and Italian wheat crops are confirmed. On the several exchanges, visited by your correspondent during the past month, trade has been wretchedly dull; the price of English wheat, which is now coming in, in much better condition, is very low. The average price as reported by the Board of Trade for the week ending March 29th was only 29s. 9d. per imperial quarter. It will be seen from the following market report, dated March 31st, 1817, that the good old times are no more.

Some attention is being excited by certain sensational statements made by Mr. H. Kains-Jackson that the earth is rapidly declining in its fertility—that the world is poorer to-day than it was yesterday, and will be poorer to-morrow than it is to-day, its inhabitants being so wantonly, wasteful and improvident that there is great danger in the near future of stores of phosphates becoming diminished and of the old cultivated lands of Europe becoming exhausted, together with the resources by which they have hitherto been recuperated. This danger, however, appears exceedingly remote, especially when stores of nitrate of soda are accumulating rapidly in excess of the demand, that the market price is only about £8 10s. per ton, whereas a year ago it was £11 per ton. Nitrogen is the dominant manurial agent which has to be supplied in plant food, and so long as the nitrate stores remain so abundant as to be almost inexhaustible, one need not dread the exhausting fertility of the soils.

A meeting of the council of the National Association of British and Irish Millers was held on March 24th and according to one of the councilmen present, although several committees should have laid before the council their reports, nothing had been done, so that nearly the whole of the time of the meeting was wasted in discoursing matters that were not ready to be brought before the council. However after nearly two hours had been wasted two technological awards were made to gentlemen, who had qualified themselves for the prizes; the subscription to the Railway and Canal Traders' Association was ordered to be paid and the nomination of president took place. It was resolved to approach Mr. J. T. White, a well-known miller of Dundee, and ask him to allow himself to be

nominated for the presidency, and in such a case to suggest to him that Edinburgh be the place for this year's convention. After the meeting had dealt with the agenda, the council had under consideration the appointment of a secretary in the place of Mr. J. H. Chatterton, who has resigned. Four names were before the meeting, but it was eventually decided to appoint a small committee to decide the question and the location of the new offices. This committee met last Monday afternoon and after a long discussion, three of the candidates were rejected and it was thought advisable to advertise in the milling press before deciding who should fill the post. If those gentlemen in the council of the Millers' National Association are not very careful at the present stage of its existence, the whole institution will suffer and in time crumble away. It will require someone with plenty of energy to put life into the association and increase the number of members. At the present time the number of millers forming the association do not number 300, whereas if every roller mill in the Kingdom were to have one person in the association there would be a membership of 536. Besides this some hundreds of large millstones millers should also be influenced to come forward and make a strong institution. However there are certain men who had set their minds to do away with the association, and it will require a great deal of work to counteract their agitation. The milling journals here should step forward and give such help as will push the cart up the hill.

The Victoria Purifier, manufactured by Messrs. Higgenbottom & Co., of 32 Seel St., Liverpool, is making headway here, 197 machines have been sold since November, 1888. One of the agents, who has been very successful in placing orders, is Mr. J. W. Throop, of 15 Seething Lane, London, E. C. By the way, this gentleman starts for New York in two weeks time, so that he may be expected in Milwaukee about the end of this month. Mr. L. E. Barbeau, the European representative of Mr. S. Howes, of Silver Creek, N. Y., and 64 Mark Lane, London, E. C., will also leave for New York this month. Mr. Henry Simon, who has applied to the patent office to amend one of his patents, has been opposed by Mr. Higgenbottom. This step is likely to lead to some litigation, and as these gentlemen have one or two points to settle, it may ultimately resolve itself into a big patent law case.

Fire insurance is a matter that is being considered by a committee of millers, but the risk according to the tariff offices is so underpaid, that they are considering the advisability of raising the rates on corn mills. A scheme is before the offices of charging so much per inch roller surface, as it is impossible otherwise to get at the exact production of flour. The millers meet however every week or so and discuss the best way to start a Mutual Fire Insurance Company and in their discussions are opening the eyes of the fire offices, who are now determined not to pay £225 for every £100 received from corn millers. If the rates are raised here, it means that the large men will have to pay away large sums of money that have so far been reckoned as profit. This will give the American millers a better chance to come into competition here. Speaking of competition reminds one of the state of affairs in Germany. There it is evidently

keen, and the smaller mills are suffering severely in many districts at the hands of larger mills or "flour factories" as they are expressively termed. Custom millers are in a bad way in Brunswick and in Hesse. In the former district it is stated that a country miller, who does not supplement the work of his mill by farming or some other occupation, finds it very hard to live.

A decree has been published in the *Diario do Governo*, by which the duty on foreign grain imported into Portugal is fixed at 16 reis (1.50 dollars) per kilogramme.

Reports have just come to hand from Australia, emphasizing former accounts as to the heavy deductions that have to be made from early crop estimates; only about 1,000,000 qrs. of wheat are likely to find their way to Europe. New Zealand is now securing an abundant and fine yield. Present rates for Australian wheat, seem able to attract shipments but slowly, 34s. 6d. per 480 lbs., or say, 36s. in Mark Lane for 496 lbs. is very cheap for fine white wheat, probably most of this will be quickly absorbed by English and French buyers, without being left on the market at ports of call. Prices for Indian wheat 29s. 6d. to 35s. 6d., only draw very small shipments, and the season is advanced enough to make export active. A poor crop and poor prices, however, keep trade dull.

Before closing this letter, I should mention that Mr. William Reuther of the firm of Messrs. Reuther & Reisart, who is well-known to millers and milling engineers connected with the flour trade in England, Germany and France, left England for home during the past month, and embarked for New York by the North German Lloyd line. Mr. Reuther is visiting the United States to introduce their "chronos" Automatic Grain Scales. These machines have been adopted by several governments and are recommended by the principal milling engineers of Europe, and when the machine has been seen and tested, it will, I have no doubt, be pronounced by you to be a first-class weighing machine.

L. MAYGROVE.

LONDON, April 3d, 1890.

NEWS.—The Stilwell & Bierce Mfg. Co., the well-known mill-builders of Dayton, O., are just starting up the Porter mill at Winona, Minn., and are hard at work on the Arcade mill at Rochester, N. Y.

The oat meal mill recently burned at Ottumwa, Ia., will not be rebuilt.

The Hoxie Milling Co. are preparing to build a 75-bbl. mill at Hoxie, Kans.

LAMBERTON, Minn., people are anxious to have some one build a flouring mill there.

A BATTLE CREEK, Ia., grain dealer recently shipped 30,000 pounds of pop corn to Boston.

A LARGE quantity of new machinery is being placed in the many mills in Minneapolis.

DIED, March 17th, 1890, Otis A. Pray, the oldest mill-builder and mill-furnisher in Minneapolis. He was 57 years of age.

AT Indiana, Pa., April 9, a bolt of lightning struck and set fire to the flouring mill of Wegley & Wilson. Loss about \$15,000.

L. M. GODLEY & Co. have let the contract for rebuilding their mill at Scottsville, N. Y., to the Edw. P. Allis Co. of Milwaukee.

AT Dodge City, Kan., April 9, the Sunset Flouring Mills, owned by G. M. Hoover, were destroyed by fire. The loss is \$25,000; no insurance.

ISAAC P. HILL, a well-known operative miller, died of heart trouble while engaged in his work as head-miller at Sheridan, Montana, March 20.

THE Richmond Manufacturing Co., of Lockport, N. Y., are represented in the Northwest by Mr. Wm. Dodge, with headquarters in Minneapolis.

AUSTIN, Texas has decided to erect the greatest dam in the United States over the Colorado river. It will cost \$1,500,000 and afford 14,000 horse-power.

THE Gilbert Starch Works at Des Moines, Ia., were destroyed by fire April 14. An English syndicate had purchased this factory a short time ago. It was insured for \$200,000.

AT Winfield, Mich., April 4, the Winfield Grist Mill, owned by Sam Stetler, was burned. The loss is estimated at about \$30,000. It was insured for \$3,000. The cause of the fire is not known.

AT West Liberty, Ia., April 5, Rogers & Weislag's mill and two barns were burned. The loss on the mill was \$7,500, insured for \$4,500. The loss on the other buildings was small and covered by insurance.

AT Wingate, Ind., March 16, the elevator of J. McCordle was destroyed by fire. Loss \$10,000 with an insurance of \$6,200. Two thousand bushels of grain in the elevator were also destroyed, but were fully covered by insurance.

AT Corydon, Ind., April 8, the large flouring mill owned by John W. Loweth, together with a large quantity of wheat and a few out-buildings was burned. The loss is estimated at from \$10,000 to \$12,000 with an insurance on the mill of \$6,000.

W. F. SNOOK, milling expert, who was employed at Kehlor Bros.' mill, Edwardsville, Ill., up to the time of its burning, last November, is now stationed at Litchfield, Ill., where he has charge of the Planet Mills, owned by same firm.

AT Richey Mo., April 11, the large flouring mill and elevator of the Richey Milling Company were burned. Nothing was saved. The loss will amount to \$55,000; insurance, \$30,000. The farmers in the vicinity had considerable wheat stored in the elevator waiting for higher prices.

THE origin of the Kaw elevator fire, at Kansas City, Mo. which occurred March 26, causing a loss of about \$35,000, is still unknown. A. J. Mead & Co. owned a small part of the wheat, but the most of it, 17,000 bushels, was owned by J. W. Moore & Company. It was insured for \$12,500.

BURNED, March 31st, the Kauffman Milling Co.'s Anchor Mill and Elevator, at St. Louis. Loss \$250,000. It is said the plant will be rebuilt at once. The insurance on buildings, machinery and stock is reported at \$194,500. This is the fourth time the Anchor Mill has been destroyed by fire.

NEAR Latrobe, Pa., April 5, the roller flouring mill owned by Washington Ballinger was, with about 1,200 bushels of wheat, 800 bushels of corn, 500 bushels of oats, a large quantity of flour and feed, entirely destroyed by fire. The loss will reach \$12,000, with an insurance of about \$8,000. The origin of the fire is a mystery. It is believed to have been the work of an incendiary.

THE new mill of the Mennonite colony in Hutchinson county, Dakota, was destroyed a few days since in the following peculiar way: Flour was being drawn and sacked from a bin in the upper story. A large quantity had been drawn, leaving a cavity, when a great mass caved in with such force that the spout was burst off and the contents of the bin rushed into the room below. An explosion occurred, which is said to have blown one side of the mill half way across the river, and the whole inside of the structure seemed to catch fire at once. Several parties were injured and burned quite badly.—*Northwestern Miller*.

It looks as if the St. Lawrence is to be bridged at another point—on this occasion not very far from Lake Ontario. The river will be crossed at Ogdensburg, connecting with the Canadian Pacific near Prescott. From the former town, a connection already exists with the Delaware, Lackawanna and Western Railway, which runs into New York. The construction of the bridge will mean, therefore, a Canadian Pacific route between New York and Vancouver, a not very pleasant prospect for some of the American roads. Direct communication with the Pennsylvania coal centres will effect a material reduction in the company's fuel bill. The Bridge Company is understood to be incorporated in the Canadian Pacific interest.—*Financial Times*, (London).

In the line of fire proof construction a Philadelphia architect has the honor of introducing the latest novelty. His specifications for a large ten story apartment house now building in that city call for floors of asphalt with a skirting of strips of wood adjoining the partitions embedded in the asphalt and level with its surface. It is intended to lay the carpets on the asphalt and tack the edges to the wooden strips.—*Fire and Water*.

[From our regular Correspondent.]
OUR ST. LOUIS LETTER.

THE demand for flour has been quite active for the past few days and all the mills of the city, with the exception of the Regina and Goddard's, which are running half time only, are grinding night and day. One cause for this brisk demand is owing to the shutting down of most of the country mills in this vicinity, which on account of the poor condition of the roads can obtain no regular supply of wheat. There is practically no export trade. The recent breaks in the levees of the lower Mississippi effectually stops the bulk of the trade in that direction, but a reaction is expected so soon as a lower stage of water is reached. The high prices reached in wheat for the last week have naturally raised considerably the prices of flour over those of two weeks ago. Quotations for April 1st were for choice, \$2.65@2.80; fancy, \$3.30@3.40; extra fancy, \$3.70@3.80; patents, \$4.05@4.15. Present quotations are for choice, \$2.70@2.90; fancy, \$3.50@3.70; extra fancy \$4.00@4.25; patents, \$4.40@4.50. Offals too have had a "boom," orders coming very brisk from southern points. Bran has sold as high as 70c in sacks, f. o. b.

The Butterworth bill since its discussion by the House Committee of Agriculture has excited no little comment on the floor of the Merchants' Exchange. Those opposed to it declare that if the bill is passed the \$10,000 tax levied on option dealers will have to be paid by every pit trader and commission house; and would prove the ruin of the business of every Board of Trade in the country. It was rumored that a committee would be sent on to Washington to work against its passage, but as the House Committee have just decided to hear no further argument on the subject that action is out of question. The feeling on 'change in regard to it seems about equally divided.

On Saturday morning, March 29th, the Anchor Mills and grain elevator were completely destroyed by fire. The mill had a capacity of 1,400 barrels a day and the capacity of the elevator was about 250,000 bushels. The latter building was a late addition to the plant, being erected in 1889. The buildings were valued at \$200,000 and the insurance held on them was \$137,000. The mills and elevator at the time of the fire contained 6,000 barrels of flour, 60,000 bushels of wheat and two cars of flour. They were insured for \$69,000. This milling plant was owned by the Kauffman Milling Co. Mr. John W. Kauffman, President of the company, has not decided definitely whether to rebuild or not. The Mo. Pacific Railway wish to buy Mr. Kauffman's lease on the land and it is not improbable that an agreement will be made. A rumor to the effect that Mr. Kauffman intends to build a milling plant on the East side, to consist of four distinct mills with a combined capacity of 2,000 barrels per day is prevalent, but it was emphatically denied by Mr. Kauffman.

A topic of great interest on 'change to-day was the failure of Moses Fraley. This makes the fourth time this gentleman has "failed" and all under the same circumstances, that is caught short on the markets and obliged to "to lay down." Mr. Fraley has come to a settlement with his creditors on the basis of 79¢ for May wheat, and on the present market standing, 84¢, if he is as short as reported, saves \$150,000 by his promptness. He owned every bushel of cash No. 2 wheat in this market on which he will now realize a good profit.

Mr. Whitaker, formerly with the Regina Milling Co., of St. Louis, and Mauntel, Burgess & Co., of Aviston, Ill., has severed his connection with the Meramec Mills, of St. Louis, and will go on the "road" for Barnard & Leas. He will be succeeded as headmiller by Peter Luendecker, late of the Regina Mills.

W. C. Edgar, business manager of the Northwest Miller, was in town recently, attending to arrangements for taking the winter wheat millers to Minneapolis in May. He expects at least three car loads from St. Louis, and has made arrangements for such.

WALTER HOWARD BAIN.
St. Louis, April 14, 1890.

GOOD WORDS BY ENGINEERS FOR ENGINEERS.

AT a recent convention there were many good expressions by well-known and prominent engineers. *Modern Light and Heat* has published some of these sayings which we quote as worthy of perusal and remembrance.

No one furnace is best for all fuels, and rarely for more than one.—George H. Babcock.

It pays to have men of brains as well as brawn and muscle even for firing fuel and watching water.—George H. Babcock.

It is to the furnace we must look largely for the ability to meet the sudden fluctuations in demand for steam.—George H. Babcock.

It is well to understand that there is no such thing as "burning smoke," but furnaces can be made to produce a minimum quantity.—George H. Babcock.

No more inviting field is offered for either investigating capital or good engineering than a central station for lighting, power and railway work.—C. J. Field.

I think there is infinitely more danger in the electric lighting stations from boilers, engines and heating apparatus, than from the electric lighting wires.—T. Carpenter Smith.

Some engineers trained to the sound of their engine, will notice a very slight difference in the working of any part by the change of sound, even when they are engaged in other work, and apparently not listening to any noise.—F. E. Sickles.

We use a coal which costs us a dollar a ton more than some others we could get, and count it the cheapest, because the item of hauling away the ashes with us is very heavy.—T. Carpenter Smith.

Set down all claims to the evaporation of over twelve pounds water per pound of combustible (unless it be oil, gas or hydrogen) under any condition, as made ignorantly or with an intention to deceive.—George H. Babcock.

I believe it is impossible, with care, to operate a storage battery on grades not exceeding, say four per cent., and with limited speed and daily mileage, at an expense about equal to that of horses, or a little less.—Frank J. Sprague.

The insurance inspector who steps into a building, and is competent to inspect everything in it except electric wires, should make himself competent to inspect that risk, and accept or reject it for cause.—Marsden J. Perry.

To-day there are no less than 15,000 motors in use, applied to not less than 200 different industries, and an industrial revolution is taking place equaling, if not surpassing, in importance that attending the introduction of the steam engine, and marvelous in the rapidity of its growth.—Frank J. Sprague.

I think that a large source of economy will be found in central stations by putting in a forced draft apparatus, more than increasing the boiler capacity. I know there is strong prejudice against forcing boilers, on the score of danger from it, but I do not think that any electric light station should be run by any man that cannot be trusted to force a boiler without endangering it.—T. Carpenter Smith.

When we consider that in constant running a boiler, to speak figuratively, eats its head off every three or four months, it is plain that a reasonable additional cost for an economical boiler is a first rate business investment. In other words, a boiler which would save ten per cent. of the coal, would pay thirty to forty per cent. on its cost, annually, and would be cheap at a

round price, as against another as a gift.—George H. Babcock.

The watchwords of the future are certainly economy of fuel and perfect insulation, and while there may be improvements in designs for apparatus, and in methods and means of distribution, and while we still hope for the direct conversion of the energy of coal, the advance of the immediate future should be in the direction of economizing present waste, rather than the discovery of new facts or principles.—E. R. Weeks.

As illustrating the progress of electric railways I may state that there are about 130 towns in the United States with one or more electric railways in operation, construction or under contract, and that these roads comprise about 1,500 miles of track, equipped with about 1,700 motor cars, requiring 3,000 motors of an aggregate capacity of 45,000 horse-power, and steam and electrical generators of 25,000 horse-power. The roads in operation are making about 100,000 miles per day, and within three months the mileage will be doubled.—Frank J. Sprague.

THE STARCH TRUST.

IT is now definitely announced that all details in regard to the National Starch Company, which is the name of the Starch Trust, have been finally completed, and nothing now remains to be done but to make the transfer, which will be done, it is announced, on or before April 12. All the principal starch companies in the country, with the exception of two, have gone into the Trust. The exceptions are the Kingsford Factory, at Oswego, and the Chicago Starch Works, which were recently burned. It is believed that these companies will work in perfect harmony with the Trust, however, as far as prices are concerned, provided the combination does not attempt to take trade away from them. The National Starch Company has selected the following officers: President—Hiram Duryea, of the Glen Cove Starch Manufacturing Comp.; Vice President—William F. Piel, of the William F. Piel Starch Co., of Indianapolis; Secretary—Frank Schuler, of the A. Erkenbrecher Starch Co., of Cincinnati. An Executive Committee of twenty-one, including fourteen manufacturers and seven promoters, has been selected to take administrative charge of the combination, which will have its main office in this city. The Company is organized under the laws of the State of Kentucky, with a capital of \$10,000,000. It is composed of the following companies: The Glen Cove Starch Manufacturing Co., New York; the William F. Piel Starch Co., Indianapolis, Ind.; Weit, Lautz & Brothers, Buffalo; the C. Gilbert Starch Co., Buffalo and Des Moines; the Franklin Starch Co. and the Indiana Starch Co., of Franklin, Ind.; the S. Cutzinger Co., Edinburg, Ind.; the George Fox Starch Co. and the A. Erkenbrecher Starch Co., Cincinnati; the Firmenich, Starch Co., Marshalltown, Iowa; The Elkhart Starch Co. and Muzzy & Sage Brothers, Elkhart, Ind.; the Ottumwa Starch Co., Ottumwa, Iowa; John Clements & Son and R. Johnson & Son, Madison, Ind.; the Julius J. Wood Starch Co., Columbus, Ohio; the Sleeper Starch Co., Des Moines; the Voorhes Starch Co., Danville, Ill.; and the Peoria Starch Co., Peoria, Ill.

In regard to the advances in prices that the Trust is believed to contemplate, jobbers in this city believe that the advance will not be a large one, inasmuch as if too large a profit were shown it would be an inducement to competition. It is argued that the Trust cannot control the raw material, and as long as it cannot do that, any one can start a starch factory, which requires but very little capital. Notwithstanding the large number of factories existing, there is invested in them, outside of the Trust, not more than \$5,000,000, and the Trust proposes an investment of \$10,000,000. It is computed that a starch factory, grinding 1,500 bushels of corn

daily with corn on the basis of 30 cents a bushel, and running less than 300 working days in a year, shows, after deducting selling commissions of 5 per cent., making a cash discount of 2 per cent. for goods sold through middlemen, paying no less freight than 30 cents a hundred pounds, and charging off 10 per cent. on a plant of \$100,000—a net profit of more than 38 per cent. on the investment.

Starch manufacture, it is further urged, is one of the industries into which science has not actively entered. At least there is only one establishment in the country which has an improved process, and this company is out of the combination. The process, moreover, is not protected in such a way that it may not be obtained and used by any new manufacturer. The latter, therefore, if he understands his business, can make starch and sell it as cheap as the Trust can.

Looking at the matter in its broad light, therefore, jobbers do not fear any evil effects from the Starch Trust.—N. Y. Daily Com. Bulletin.

FLOUR AND GRAIN TRADE NOTES.

MOSES FRALEY, the St. Louis grain broker, failed April 7th.

THE Chicago Board of Trade evidently intend to squeeze the bucket-shops out of existence, if possible.

APRIL 2, the Seed and Feed convention met in Huron, S. Dak., and arranged for the distribution of \$45,000 worth of feed, and \$5,000 worth of seed wheat.

THE Linseed Oil trust has ceased to exist and in its place stands the National Linseed company. Owners of forty-nine linseed mills, a number of elevators and transportation lines are interested. The capital stock is \$18,000,000.

DAVID DOWS, of New York, but equally well known in Chicago, died suddenly in the 79th year of his age. He was for years one of the most prominent figures in the American grain trade. He leaves an estate valued at \$18,000,000 to \$20,000,000, which will be divided between his seven children and their heirs.

Two things have developed since the quotation department on 'Change was abolished. First, that the volume of business on the Board has very materially increased. Second, that the exchanges of other cities are discovering that they, too, are being benefitted in a degree corresponding to the embarrassment felt by bucket-shops.—Daily Business (Chicago).

THE Merchants' and Traders' Produce Exchange, B. Lanier, Hugh McCrea, A. R. Duncan and Isaac Reeves, Nashville, Tenn., made an assignment for the benefit of creditors. Their liabilities are estimated at \$100,000. The exchange hopes to pay in full. The failure was caused by the recent rise in wheat and pork and fall in Tennessee Coal and Louisville & Nashville Railroad stocks.

ACCORDING to report of S. G. Brook, Chief of Bureau of Statistics, the amount of wheat and flour exported from the United States during month ending March 31, 1890, was wheat 4,842,732 bushels; flour 1,151,287 barrels, the total valuation of which is placed at \$15,566,219, while for the corresponding month in 1889 the total valuation of wheat and flour exported was \$9,636,482. A note in connection with the report states that these amounts are about 97 per cent. of the entire sums.

THE following resolution was adopted by the council of the St. John (N. B.) Board of Trade:

Resolved, That in the opinion of this council it is objectionable that the duty on flour imported into the Dominion should be increased above what it is at present, but if it should be decided to increase the duty, it would be only fair to the people of the maritime provinces that they should be relieved of duty on other articles largely used here. This council would recommend

that corn should be admitted free, in which case the duty on corn meal should be reduced to twenty cents per barrel.

EVENNESS OF MESH, EXACT COUNT, STRENGTH, DURABILITY
Are the requisites of a perfect Bolting Silk.

The Excelsior Bolting Cloth

Possesses all of these qualities without an exception.

It is guaranteed for this cloth that it will **OUTWEAR ANY OTHER BRAND.** It never fails to give satisfaction, and is the most extensively used of any.

All goods fully warranted or no sale. Cloths made up promptly, and perfect fit guaranteed.

— WRITE FOR PRICES, ETC., TO —

B. F. RYER, 63-65 South Canal St., CHICAGO, ILL.

SOLE AGENT IN CHICAGO FOR IMPORTERS.

WM. W. ALLIS, President.
EDWIN REYNOLDS, 2d Vice-Pres't & Sup't.
EDW. P. ALLIS, JR., 1st Vice-President.
CHAS. ALLIS, Secretary and Treasurer

The Edward P. Allis Company.

Milwaukee, Wis., April 1, 1890.

We beg to announce to our friends and customers that the business of the late Edward P. Allis has been re-organized under the form and corporation name of "The Edward P. Allis Company," and the entire plant and assets transferred to the same.

It will be our earnest endeavor to maintain the high standard of excellence attained by our work in the past, and we respectfully solicit the continuance of the kind patronage granted us by our many friend and customers.

WM. W. ALLIS, President.

CHARLES ALLIS, Secretary and Treasurer.

MILL FOR SALE.

A first-class water-power flour mill, 1½ miles from Cawker City, Ks. Good power; plenty wheat; good custom trade. Address,

CLARK A. SMITH,
CAWKER CITY, MITCHELL CO., KS.

FOR SALE NEAR SIOUX CITY, IOWA.

Roller Mill with 260 acres of land, on Chicago & Northwestern and Illinois Central railways, with water power and side-tracks available.

Mill, machinery (new) etc., cost over \$11,000
Land, at \$30 per acre, valued at \$7,800
Total \$18,800

To see the estate, can be bought at once for thirteen thousand (\$13,000) dollars—\$5,000 down, balance on mortgage. Full particulars of

J. A. DEAN, Sioux City, Iowa.

MILL FOR SALE.

My 100-bbl. roller mill, situated in Volga, Brookings Co., S. Dak. Average daily exchange trade from Sept. 1, 1889, to April 1, 1890, 130 bushels of Wheat. Have never had a failure of crops. No incumbrances. For particulars address,

C. R. MADISON,
VOLGA, S. DAK.

FOR SALE—In Wisconsin.

125-bbl. roller flour mill, 4 stories, frame with stone basement, including plenty water power for 4 water wheels. Flume, dam and mill in good condition. Frame warehouse and office close by, and long sheds for farmers' teams. The whole property in full operation 16 hours daily, doing profitable business. Has big grist business. City of 2,000 population; two railroads. Good trade with citizens, farmers and lumbermen, for flour, feed and rye. Good local grain, and plenty of it. Good place to live, has good schools and churches, and close to other large cities. Owner non-resident, which is reason for selling. Address,

MENASHA WOOD SPLIT PULLEY CO.,
MENASHA, WIS.

SITUATION WANTED.

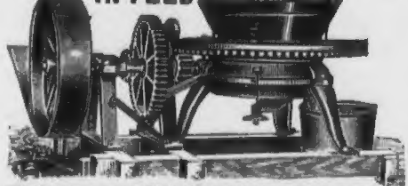
A position as Engineer, by a practical and experienced man. Have my own Steam Engine Indicator and Planimeter. Have had nine years' experience, and will go to any responsible party on trial. When writing, please state kind of engine and boiler, the condition of all connections therewith, and amount of wages paid. Eastern Kansas or Missouri preferred, but will go anywhere.

Address: FRANK SCHLOSSER,
P. O. Box 182, Augusta, Butler Co., Kans.

SITUATION WANTED.

By June 1, a situation to take charge of a roller mill of from 50 to 100 barrels capacity. Have a family, can speak German and English, and can also do any kind of millwright work. Good reason for changing present position. Addresses of different mill owners for whom I have run mills will be furnished, as recommendation. Address M. and M., care of UNITED STATES MILLER AND MILLING ENGINEER, MILWAUKEE, WIS.

Corn & Cob Crusher and Grinding Mill For MILLERS and DEALERS IN FEED.



THE STAR STEAM POWER GRINDING MILL
is unsurpassed for preparing Ear Corn so that it can be ground on the Stone Burr, or for grinding Chop Feed fine enough for use at one grinding. 10 to 30 bush. per hour. Send for circular & prices. THE STAR MFG. CO., New Lexington, O.

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63
48
3024

SHORT-CUT.

8x3=24. Put down both figures and carry one, (always carry one.) 5x3=30. Put down both figures, and you have the product 3024.

46
27
1242

LESSON 14 of "One Hundred Lessons in Business" explains a multiplication rule which is turning the arithmetic of the country upside down or rather right side up. It is really one of the best things ever published, and the whole matter is so simple that it is a surprise to every one that it was not thought of long ago. For instance, take the first example given at the left: say 8 times 3 are 24 and put down both figures. Carry one and say 5 times 3 are 30, and put down both figures. (Always carry one.) Of course this rule does not apply to all numbers, but it applies to an immense number. By three minutes study of this lesson as given in the above named book, the smallest school children can tell at a glance which numbers will work and which will not. It is more than likely that you have spent hours finding the value of certain things at certain prices, when the work could have been done in minutes. The rule applies to whole and fractional numbers of two, three and four figures. This lesson represents only one one-hundredth part of the book. The work is brim full of new points. Here are the titles of a few of the other lessons:

82
49
4018

96
38
3648

What Successful Men Say of Success and Failure.—Rapid Addition Made Easy.—Business Fractions and How to Handle Them.—Civil Service Method of Addition.—Proof of Addition in Ten Seconds.—Proof Multiplication in Ten Seconds.—How to Mark the Prices of Goods.—Hints and Helps for Corresponding Clerks.—Hints and Helps for Invoice Clerks.—How to make Change.—How to apply for a Situation and Get It.—Five New Points from Iowa.—The Five-Four-Five Interest Method.—New Method of Multiplying by the Teens.—How to make and Endorse Promissory Notes.—Hints on Advertising.—Wanamaker's Discount Rule.—The Detroit and Canadian Interest Rules.—French and Italian Methods of Division.—New Method of Averaging Accounts.

43
84
3612

88
55
4840

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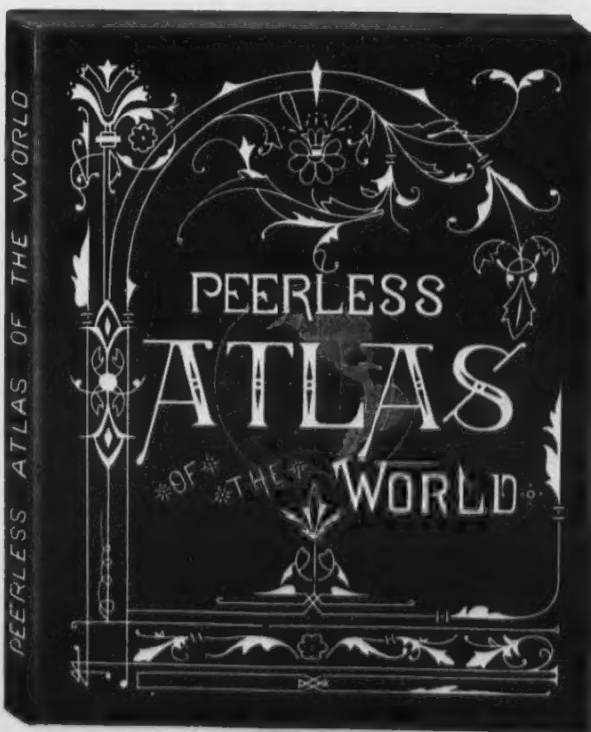
63
29
1827

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WISCONSIN MILLERS' ASSOCIATION.

PURSUANT to call, the members of the Association met in the club room in the Plankinton House, April 8, at 2.30 p. m., with Vice-President E. J. Lachman in the chair.

After calling the meeting to order he requested members to arise, and in a few brief but feeling remarks paid a tribute to the memory of the late President, EDWARD SANDERSON, after which a resolution was offered by Mr. Hurd, requesting the President to appoint a committee to draft suitable resolutions of respect to the late President and have them spread upon the records of the Association.

Messrs. L. R. Hurd, J. F. Kern and C. A. Manegold, were appointed on this committee.

The Secretary's and Treasurer's reports were then read and approved.

Secretary Seaman's report in full, was as follows:

Members Wisconsin State Millers' Association.

Gentlemen: Our last annual meeting was held April 10th, 1888, at which time the following named gentlemen were elected officers: Edward Sanderson, President; E. J. Lachman, Vice-President; S. H. Seamans, Secretary and Treasurer. An executive committee composed of Messrs. J. B. A. Kern, C. A. Manegold and Gus May.

Your Secretary was re-elected to represent this Association on the National Executive Committee.

At that meeting an assessment of \$3.00 per unit capacity upon the membership of the Association was ordered levied for the purpose of paying up the arrears of the Association. In my report at that time I estimated a membership of 282 units in good standing. When the assessment was levied, however, only 210 units responded to the call. There have been since added to the membership eleven units of the National Association basis of \$5.00 per unit of one hundred barrels. This amount has been paid directly into the treasury of the National Association, and the memberships entered upon our roll.

When the time arrived for the annual meeting of '89 a consultation with our then president, Mr. Sanderson, resulted in a decision that it was unnecessary to put the members to the expense of attending a meeting at that time as there was nothing of sufficient importance in sight for calling them together.

Since our last meeting our honored president, who had occupied the position since the organization of our association, has been taken from us, and it is fitting that the members at this meeting record upon their minutes a fitting tribute to his memory.

Again the patent sharks have commenced operations and we are threatened with suits from two sources.

First.—One J. H. Thomas Russell, claiming title under the George T. Smith patents, has brought suit against Messrs. Kendall & Co., of Hartford, claiming royalty under the Smith patents. This looks to me like a fraud of the first water. It is being defended by Messrs. Kendall & Co., and the Secretary upon his own personal responsibility, is giving the defendants all the aid and information possible. The probabilities are that this case like all others, will meet the defeat it merits.

Another case to which your attention has undoubtedly been called by numerous circulars, refers to the patents on cockle separators.

One William E. Lee, of Minnesota brought suit against Pillsbury & Co. for infringement of his patent. This suit was defended by the Milwaukee Cockle Separator Mfg. Co., and much to the surprise of both the plaintiff's attorney and the defendant, a decision has been rendered in favor of the patentee. This case was tried before a jury and the plea which seemed to carry great weight with the jury was the fact that the "poor inventor" was being defrauded of his rights by the "rich miller." Now in this case the reverse is the fact. The owner of the patent being a rich banker, and the parties to be attacked are "poor millers." I have had a conference with the Cockle Separator Company, and they have agreed to see this case through to the United States Supreme Court if necessary. From what little knowledge I have of patents and the milling art, I am thoroughly satisfied that the patents of Lee will be declared void in the higher court.

I desire at this time to call your attention particularly to the annual meeting of the National Association to be held in Minneapolis, June 17th to 20th. Mr. Barry, the Secretary, has secured a single fare rate for the round trip, and the Minneapolis people are making calculations on having the biggest representation of millers in Minneapolis that has ever been gotten together at any one time. I trust, therefore, that every miller will so arrange his business as to be present at that meeting.

The main business before this meeting to-day is the election of officers for the ensuing year as follows:

President; Vice-President; Secretary and Treasurer; Executive Committee of Three; and a Representative on the National Executive Committee.

While it may seem a little premature, I wish to say that under no circumstances am I a candidate for any position, being entirely out of the milling business and my time so fully occupied otherwise, that I can not give the business of the association proper attention. I have no one to recommend or suggest further than to express the wish that your member upon the National Executive Committee will have the one great qualification necessary to that position, which is, plenty of back bone.

I shall always continue my interest in the success of the association and will at all

times be ready to lend any aid or assistance that may be desired which is in my power to furnish.

In parting with the Association I wish to express to every member of it my warmest thanks for the courtesy and consideration which has always been extended to me; and it is with great pride that I make the statement that during all my connection with the association in an official or personal capacity I have never received from any member, any but the kindest of treatment, and my remembrance of the members will always be among the most pleasant of my life.

I again thank you for your kindness and consideration.

Mr. Seamans having positively declined to serve longer either as Secretary of the State Association or its representative in the executive committee of the National Association, Mr. H. E. Sanderson offered the following resolution which was unanimously adopted:

Resolved, That the thanks of this Association are hereby tendered to Mr. S. H. Seamans for his past services as Secretary and Treasurer and member of the Executive Committee for many years and his great services in the interest of the Association.

Election of officers was then taken up, which resulted as follows: President, E. J. Lachman of Neenah; Secretary and Treasurer, L. R. Hurd of Milwaukee; Member of Executive Committee of Millers' National Association, William Sanderson; Executive Committee of State Association, J. B. A. Kern and C. A. Manegold of Milwaukee and Gus May of Watertown.

Secretary Barry of the National Association was called for, and reported the status of the Bill of Lading matter. Every effort possible was being made to secure the result desired and he had strong hopes that the millers would soon succeed in obtaining the end sought for. He believes the matter was almost entirely in the hands of the millers themselves. One line of ocean steamers were willing if guaranteed a reasonable amount of business to accept the bill of lading proposed.

If this necessary support was given them it would not be long before other lines would be anxious to secure the flour carrying business, but millers would be apt to remember the line that stood by them and helped to secure a satisfactory bill of lading. Secretary Barry requested all flour exporters to place in his hands at once all possible points of information and data regarding abuses suffered at the hands of export lines. It would materially assist him in his labors for the benefit of the trade, and it was probable that a hearing would be obtained before the Inter-State Commerce Commission at which time this data will be used as evidence of the injury being done to the export trade of this country and an effort will be made to secure the passage through Congress of a bill, which will effectively regulate the delays which occur through permitting flour to lie for an indefinite period in the docks at the sea-board before delivery to trans-Atlantic lines.

Mr. L. R. Hurd, chairman of the committee appointed to draft resolutions on the death of the late President Edward Sanderson presented the following report which was ordered spread upon the records of the Association.

The committee appointed by the President of the Wisconsin State Millers' Association to draft resolutions of respect to the memory of the late Edward Sanderson, present the following:

WHEREAS, Since our last annual meeting, it has pleased an all wise Providence to remove from our midst, Mr. Edw. Sanderson, the President of our State Association, we deem it proper that fitting mention of this sad fact shall have a place in our records; therefore be it

RESOLVED, That in the death of Edw. Sanderson, our President, the loss to our Association is greater than we can well express in words; that we desire to express our appreciation of the great value of his counsel and of his wisdom and prudence in the conduct of the affairs of this Association; and that we, his associates, hold in grateful recollection his uniformly kindly bearing towards us in all our personal and business relations, and be it therefore further

RESOLVED, That a copy of these resolu-

tion. Signed,

Chas. Manegold, Jr.,
L. R. Hurd,

Committee.

No other business of special importance being ready for the discussion of members, an adjournment was made subject to the call of the President.

The UNITED STATES MILLER was represented by its publisher and O. E. Dunn, stenographer.

TO MICHIGAN MILLERS.

Office of the Secretary of the
Michigan Millers' State Association,
Stanton, Mich., April 1st, 1890.

DEAR SIRS:—Three months of the year 1890 are gone. The Michigan Millers' Association has much to show for the time, but it is not satisfied.

Out of the one hundred and twenty Roller Mills in Michigan of 75-bbls. capacity and above, it has mills representing 1 of the total capacity. It has taken in 16 new members in the last sixty days, but it has room for more.

We want our membership to reach a round 100 before the mid-summer meeting. The annual dues were changed at the special meeting in February, so that all mills of 50 bbls. capacity or less, pay but \$5; from 50 and not exceeding 100 bbls. \$6; not exceeding 200 bbls. \$8; not exceeding 300 bbls. \$10; not exceeding 400 bbls. \$12; all above 400 bbls. pay \$14. These figures are so small that nobody can object to the expense. What other reason have you?—please name, for we want to know. We promise to have the largest and best millers organization of any State in this Union. Your pride should prompt you to join hands with the representative men in your calling, particularly when it costs you practically nothing to do so. Before the next crop we expect to issue a catalogue giving the names of members with their capacity, for distribution among the trade. This alone will be worth all your membership costs you. It will cost you just as much to join six months from now as it does to-day. Why not come in now? We are doing something all the while that is worth money to you.

Yours truly, M. A. REYNOLDS, Sec'y.

(Written for the UNITED STATES MILLER and MILLING ENGINEER.)

OBSERVATIONS.

By De Facto.

THE manufacture and sale of machinery, at or below cost, soon proves a disastrous undertaking, and when the inevitable "crash" takes place, the universal verdict is that the fate is deserving, and sympathy over the unfortunate parties who were so totally wrapped up in ignorance as to disregard the mode of business of successful men, would not be thought of. We have had a few cases of this kind and one would imagine that there would be but few left who are so philanthropic as to sell machinery knowingly at a loss. It is of frequent occurrence however, that contracts are taken to furnish the machinery and all material, labor, etc., required to make a mill complete, at a figure that will take everybody by storm. The determination with which many appear on the ground to get the contract at any price has brought many a concern so near the door of the inevitable that but little more would have been required to untimely end their career at the friendly hands of a receiver or at the hands of incensed creditors in less time, and for less money, than even the bare cost of material.

The manufacturer of any line of machinery, before placing his wares upon the market, should compute carefully the cost of manufacturing, materials, wear and tear upon machinery, interest upon capital invested, rent, help, etc., and having done so, is enabled to tell the exact cost of the article. To this he adds a manufacturer's profit, and being assured that the traffic in his line will prove at least fairly remunerative proceeds with his business.

It is utterly foolish to expect parties to carry on a business for any length of time who do not compute these very essential facts, and should they remain on their feet, it is safe to say that the articles must, in some way, prove inferior to the wares of their competitors. Poor lumber, cheap workmanship, hasty finish, etc., enable the manufacturer to sell his goods at low figures, but the public too soon find out the worthlessness of their wares,

and the final result is a feeling of distrust upon the part of every person connected with the affair.

Any good miller will verify the assertion that machinery that is constantly getting out of order, never does accurate work, and accurate work must be done in mills in order to be able to meet competition. There should be no objection to a man trying to buy a machine as cheap as he can get it, or to buy cheap machinery if he knows what he is buying, but it is extremely foolish for a miller to buy a cheap and badly put together roller mill, bran duster, bolt or any other piece of machinery simply because it is cheap.

The flimsy character of many lines of shafting must strike those who give the subject any thought. It is not at all uncommon to find heavy belts, eight and ten inches wide, running on large pulleys in the middle of light shafts, which a stout man can deflect with a good push. The belts all lead in one direction in many instances, and the strain of them combined, is something enormous. The hangers themselves are nearly always too light, many of them being merely a cast-iron stem or arm depending from a plate. It is manifest that the hanger has a great deal more to do besides merely suspending the shaft from the ceiling, but most of them seem to have been designed for this duty alone.

From the fact that the mill was not properly constructed in the very beginning (probably on account of an economic spell) is a very essential reason that the inevitable repairs and changes must come. It is very wrong, therefore, to sacrifice everything to first cost, but it would be found invariably that the matter of repairs and renewals is as much entitled to be considered in the cost of a mill. It certainly does not pay to secure cheapness at the expense of large annual bills for repairs.

When the contract for building or remodeling a mill is to be let, there are usually as many as half a dozen or more bidders on the job. Some millers take advantage of this, and by getting the machinery men to cut each other down in prices, finally succeed in getting a low priced mill. While no mill-furnishing house can afford to do work for nothing, the deficiency has to be made up in some way, and the result is that while quality and quantity of turnout are satisfactory, there are a hundred of small matters that show themselves in their true light after a more intimate acquaintance with the various attachments. Thus, it is likely to be found that after repeated shortening of belts, the very life has been finally stretched out; the grease-keg is resorted to, and after a few applications of this universal remedy, the belting throughout the mill not only receives an old and decayed appearance, but becomes of daily annoyances. A worthless article is the cause of many chokes and disturbances, which are usually attributed to other sources. A slipping belt will cause imperfect working of the machine it drives. Although kept as tight as a drum, it has lost its grip while seemingly performing its work.

HOME-SEEKERS' EXCURSIONS.

On April 22d and May 20th the Queen and Crescent Route will sell round trip tickets to Harriman Junction (Keathley), Cardiff, Rockwood and Chattanooga, Tenn.; New England, Fort Payne, Attalla, Anniston, Birmingham and Akron, Ala.; Tallapoosa, Ga.; Meridian, Hattiesburg, Jackson and Vicksburg, Miss.; Arcadia, La.; and to points on connecting lines, at one fare for the round trip, tickets good returning 30 days.

Now is your opportunity to visit the boom-land South. Correct County maps free of charge on application to D. G. Edwards, G. P. and T. A. C. & C. Route, Cincinnati Ohio.

OUR readers will confer a favor by writing to us giving us any item of news such as new mills, elevators, etc., or improvements in the same, or giving information of a practical nature of general interest to the trade.

THE WHEATS OF THE WORLD.

BY PROF. C. S. PLUMB.

ALTHOUGH wheat is probably more widely disseminated than any other plant, comparatively few know of the various phases in which it appears in some parts of the world. The farmer of New York State feels that he is well acquainted with the wheat plant; yet he who grows hard wheat in Barbary, or spelt among the mountains of Spain, likewise believes his is the wheat of the world. But wheats present striking differences in character, and thrive over great areas in each of the grand divisions, as well as on multitudes of the islands of the sea. In its extremes of latitude and range of temperature, wheat flourishes at the following points:

Latitude.	LOCALITY.	Average winter temperature, Degrees.	Average summer temperature, Degrees.	Annual average, Degrees.
64	Norway.....	38	59	39
62	Sweden.....	28	59	37
60° 15'	Russia.....	15	50	37
30	Cairo.....	57	88	72
22	Mexico.....	64	88	75
22	St. Jo. Janeiro.....	64	75	74
23	Havana.....	71	83	77
21	Bourbon.....	71	80	77

In North America wheat fields extend far down the Mackenzie river, and the grain is raised with profit at Fort Liard, lat. 60° 5' north, over 1,100 miles north of the latitude of Buffalo. In South America the crop is grown as far as the southern end of Chili, in lat. 50° south.

In altitude of cultivation much depends upon the climate. In France wheat is cultivated to the height of 5,400 feet only; in Mexico its culture first begins at a height of 2,500 to 3,000 feet, and extends to over 9,000 feet. On the plateau of southern Peru wheat fields of extraordinary productiveness exist at 8,000 feet, and at 10,000 feet elevation, at the foot of the volcano Arequipa, this plant succeeds well.

As harvest time depends upon the country in which the crop is grown, there is not a month in the year in which wheat is not cut. The months for harvesting and the countries are as follows:

- January: Argentine Republic, Australia, Chili, New Zealand.
February and March: East Indies.
April: Egypt, Mexico, Persia, Syria.
May: Algiers, Asia Minor, China, Japan, Morocco, Texas, Tunis.
June: California, Greenland, Italy, Portugal, Sicily, Southern France, Spain.
July: Austria-Hungary, Northern France, Southern Russia and a great part of the United States.
August: England, Denmark and the Northern United States.
September: Canada (a greater part), Norway, Russia, Scotland, Sweden.
October: Russia, Finland.
November: Peru, South Africa.
December: Burmah.

The wheats of the world consist of seven types, all varieties coming under one of these. These may be divided into two grand classes, one in which the seeds are firmly inclosed in the chaff, the other having grains that easily fall from the husks when ripe. All of our American wheat, in fact a greater part of the wheat grown, belongs to the latter class.

The seven types may be named as follows:

1. The common or soft wheat. (*Triticum sativum*, Lam.)
2. Turgid wheat. (*T. turgidum* L.)
3. Hard wheat. (*T. durum*, Desf.)
4. Polish wheat. (*T. Polonicum* L.)
5. Spelt. (*T. Spelta*, L.)

6. Starch wheat. (*T. amyleum*, Ser.)
7. One-rowed wheat. (*T. monococcum* L.)

But comparatively few have ever seen wheat of any of the above, excepting the common type. It may be profitable to explain the characteristics of each, illustrating the types with dried specimens in the head and grain.

Common wheat (*Triticum sativum*, Lam.) is extremely variable in its character, and consists of a very large number of varieties. The straw is hollow and the grain soft, though some varieties produce a seed that is termed "hard" in the markets. There are both winter and spring varieties, and bearded and bearded, and the grains are classified in the market as white or red. This is the species grown all over the United States, and practically in all portions of the world, where the climatic conditions are suited to extensive wheat growing. The heads assume several pronounced forms, being long, slender, very loose and tapering; or medium, long, square, fairly compact and abruptly pointed; or very short, blunt and square at the tip, and tapering toward the base. The heads are either whitish-yellow or of a bronze color. Owing to the immense area over which this class is grown, and the variable climatic and other conditions to which it is exposed, there has arisen a very large number of varieties and so-called varieties, many of which seem especially adapted to the region in which they are grown. To this class belong the Flint, Mediterranean, Blue Stem, Soule's, Velvet Chaff, Tea, Italian, Lammas, Wicks' and many others well known from a few years ago back during the century; as well as the Landreth, Rice, Diehl-Mediterranean, Lancaster, Golden Drop, Clawson, Treadwell, Michigan Amber, Fultz, Silver Chaff, and many others extensively cultivated to-day. In the Northern States the grain of these wheats is usually amber in color, and contains considerable gluten, while in the warmer regions of America and other parts of the globe, it has less luster and more frequently plump, whitish-yellow grains that are much more starchy than that northern-grown. The Lancaster is a good illustration of a dark amber variety, the Landreth of a white one as grown in the North. Rousselin wheat well represents a white variety from France. Wheat as grown in the greater part of the United States, has not the beauty of grain produced in warm portions of Europe and Africa. However, California, Colorado and other Western States, grow by means of irrigation, as large and handsome wheat as can be produced anywhere in the world, although that of California contains a comparatively small amount of gluten. Colorado wheat leads the country in large grain, and its percentage of gluten.

Turgid wheat (*Triticum turgidum*, L.) is grown principally in Central Europe. It is known in England under various names, among which are gray, duck-bill, gray pollard; rivets, &c. Its grain is plump, large and perhaps what might be termed "hunchbacked." It is rarely white, being usually reddish, and the flour is not of very good quality. The head is usually quite heavy and inclines to one side, so that this variety may easily lodge. The heads are bearded, but in all varieties the awns drop off at maturity. The upper portion of the straw is usually solid, especially between the first joint and the head.

Hard wheat (*Triticum durum*, Desf.) is cultivated more or less in the south of Spain, Calabres, Sicily, Greece, Turkey, Southern Russia, Asia Minor, Syria,

Egypt, Algiers, Arabia, and some portions of India. I believe it is slightly grown in California. This wheat differs in a marked degree from the common wheat (*T. sativum*). The straw is long and slender, and is filled with pith. The plant stools but little, and the heads nearly square and covered with long beards. The seed is so hard and dense that in ordinary milling, difficulty is experienced in grinding it. The grain contains a large percentage of gluten, and makes a yellowish flour that is used in making vermicelli, semoules, Italian pastry and excellent bread. It cannot be profitably grown in cold regions, but it is especially adapted to warm climates. This class of wheat when fall-planted at the New York Experiment Station, invariably winter-kills, but if spring-planted it will mature, though unevenly, and the grain is not plump and handsome. It has been the custom of the United States Department of Agriculture to import seed of this wheat from Europe and Africa, and distribute it broadcast; the beautiful grain makes a good impression, and it is labeled winter wheat; yet in every case the plants have been killed by the first real cold winter weather. Indian and white Crimean are so distributed within the past two years. It certainly is a great waste of time and money to send seed of grain from Africa and Southern Europe to the Northern United States, as there is no prospect of their succeeding in our climate.

Polish wheat (*Triticum polonicum*, L.) is perhaps the most remarkable species of wheat grown. It is mostly cultivated in Northern Africa, in Egypt and Algiers, although to a slight extent in Europe. The plant does not thrive in most of the United States. It usually lodges long before maturity, and ripens very unevenly, this at least is our experience at Geneva. Further, the head usually contains many sterile flowers, yet when well developed the seeds are large and long. The peculiar and interesting feature in this variety is the head, which is whitish-yellow, large and long, with glumes or chaff that project in a striking manner, beyond the inner chaff, just the reverse of our common wheat; the chaff is more or less bearded. The grain, as in the preceding species, is very hard, and is used for making macaroni and a fine class of pastry. Owing to the handsome appearance of the well-developed seed, this variety has been placed in the market at high prices by various parties in hopes of swindling American farmers by obtaining a good round sum per bushel for an inferior wheat. Thus far, however, this trick has not succeeded.

The classes of wheat so far described are hullless, the seed falling from the chaff when beaten by the flail or threshing machine. The following are quite different in that the grain is so closely encased in tenacious glumes or chaff that it does not loosen or fall when beaten.

Spelt (*Triticum Spelta*, L.) is the best known of the three classes I propose to discuss. It is a species especially adapted to cold, mountainous, infertile regions, and hence is cultivated mostly by mountaineers in Europe and Asia, as in Lorraine, Germany, Russia and India. The head is loose, narrow, tapering, bearded or beardless, and often exceedingly long; it having grown to a length of 9 inches at the New York Experiment Station. As in all wheat, the stem of the head is made up of joints or nodes, from which the wheat flowers grow. When the head is threshed, it breaks in pieces at

the different joints, leaving the grain in the chaff as closely clasped as ever. To secure the clean seed, a milling process must be gone through to remove the chaff, which is tough and leathery. There is a white-bearded, and brownish-black-bearded, variety of this class, and also a white, beardless one; the beards are short and coarse. From the very nature of the region in which this wheat grows, we can understand that it is mostly cultivated by the poorer classes. Although writers refer to this as an inferior wheat, its grain makes a very fine class of pastry. Spelt is supposed to have been the species of wheat used by the Greeks and Romans, being termed *Zea* by the former, and *Far* by the latter. *Far* was the food of the ancient Italians, and was used in sacrifice. Haller recommends spelt as superior to any other wheat for pastry and confectionery. In his Herball, published in 1597, Gerarde says: "It bringeth forth a disordered ear * * * the corns be wrapped in certain drie husks, from which they can not easily be purged, and are joined together by couples in two chaffie husks."

Starch wheat (*Triticum amyleum*, Ser.) in some respects is closely related to spelt, but differs strikingly in two particulars, viz: The spikelets or seed vessels of each head closely lap over each other as shingles on a roof, thus forming a very compact head, with no irregular surface, and the seeds are somewhat triangular or shuttle-form, very hard and thin-skinned, quite different from the spelt, whose grain is fairly soft. The heads are bearded, of medium length, and are very smooth, the chaff being exceedingly hard. The grain is used in starch-making. This species can be cultivated in cold mountainous regions where no other wheat can be raised unless we except the next species. It has been grown for a long time in certain fertile regions of Alsace and the Palatinate in Germany, and in the cold mountains of Switzerland. As grown in America it is a spring wheat.

One-rowed wheat (*Triticum monococcum*, L.) is incorrectly named, as it is frequently two-rowed. This wheat is only grown in mountainous regions, especially in Germany, Hungary, Russia, Spain and France. It is probably the most beautiful wheat grown, as it stands in the field at maturity. The heads are very compact, as with starch wheat, the chaff being ranged in two rows, one on each side, the general appearance of the panicle being somewhat flat. The grain is of shuttle form as in the preceding species, and produces very white flour of good quality, with very little bran. This wheat is supposed to have but one seed in a spikelet, but two are so often developed that another variety has been made called two-rowed wheat.

The straw of the two last classes is rather small, but very erect, and the plants tiller to a remarkable degree—a row of twenty-three plants of the starch wheat averaging 37.26 stalks to a plant, while six plants of the one-rowed average 48.83 stalks per plant. The three last named classes are remarkably free from disease. A noticeable characteristic of these foreign varieties is their inability to survive our northern winters, hence in this latitude they must always be planted in spring.

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A WORD ABOUT FOREMEN.

THE position of foreman in any kind of business calls for a man of peculiar adaptations, character and experience. There are very few men who are in every way fitted for such a position. For while they may possess all the practical knowledge of the business, which is an essential requirement, they are seldom gifted in the other directions which are of equal importance. Some of the very best workmen we have ever seen, men who were thorough masters of their trade, and capable of judging and instructing the work of others, were lacking in executive ability or the control of men under their supervision. In fact, this is very often found to be the case, and it is much easier to find a good workman than a good foreman.

It has been previously remarked that the position called for a man with peculiar functions, and now let us see what these are according to our idea.

In the first place he must be a man of experience and have a thorough knowledge of his trade. This does not necessarily imply that he is to be an old man, for some men learn more, in fact may be called more experienced, with but a few years at a trade, than others who have grown old in that trade. Here is where one's natural ability, attention to and interest in his work counts for much, and has a great deal to do in the way of preparing him for a position as foreman.

Another feature, and one of great importance, is that of temper or character. No man is fitted for the position of foreman, or to take charge of others in any line of business, who has not full and complete control of his temper, and who will allow mistakes, intentional or accidental (and many foremen never stop to see which it is), of his men to throw him into a temper. Profanity and harsh or hasty words are not only ill-timed, out of place and ungentelemanly, but are an injury to the business and the source of unnecessary and oftentimes uncalled for trouble, and the man who indulges them will lose the respect and good will of his help and others as well. An even, quiet, yet authoritative disposition is, then, what is necessary for one in this position.

The next thing to be considered is the man's character, for upon this depends much of the employer's interests. No man should be employed as a foreman whose character is at all questionable, and while there are some good foremen who indulge in habits not in accordance with good morals and propriety, they are apt to have about them as workmen a class of men, not of the best, and who are not working for the best interests of their employer and their family. It cannot be otherwise. The example is too open and unguarded, while the power of control is lost and practically in the hands of the help. It is necessary, then, to have a man of good character who will command the respect due one in such a position, and who will have the power of influence to assist in his control of those under him.

There are certainly other requirements than these mentioned, but these seem to us to be the most important. If a man possesses these, there is little fear that he would not pass a satisfactory examination for the position.

We have given our ideas of the requirements for the position, now let us say a few words of the man in the position.

The position of foreman is a peculiar one. He is a sort of "go-between" between the proprietor and the employes. In this position he is called upon to exercise a degree of judgment and care that are a severe tax upon any man of anything but a very decided and thoughtful mind. The employer has rights which must be considered; the employes have rights which ought to be respected. Those of the employer are, of course, first to be looked to, and it is the ability to carefully guard both that requires the most careful action

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upon the part of the foreman. It is not justice to the employer to disregard entirely the rights of employes; it is equally unfair to favor them to the disadvantage or detriment of the employer. Truly the position is a trying one to the man who has a conscience and true convictions of right and justice. However, such men are scarce, and few of them are ever found in such a position.

As a rule, the foreman is a man who considers only his employer's interests, or what he believes to be these, though, as we have shown, they are not always right in the supposition.

It is useless in so limited a space to attempt to cover the ground or say all that might be said upon the subject, but most of us have had some experience, and will be able to appreciate the situation either as foreman or employe, and with this experience as a lesson, let us either endeavor to become a man fitted for the position should it ever be offered to us, or being convinced that we have not the necessary requirements, bend all our energies to become careful and skillful workmen, that we may lighten the burden of those who may be in charge of the work upon which we are employed, and prove ourselves men, with judgment and regard for the rights and justice due our employer, and that we may expect the same at the hands of the foreman.—*Manufacturers' Gazette*.

ANNUAL REPORT OF THE COMMISSIONERS OF PATENTS.

The annual report of the Hon. C. E. Mitchell, commissioner of patents, to the Senate and House of Representatives, is an able document, clear in statement and encouraging in the results set forth. The year 1889 shows a higher degree of prosperity than any preceding period. The number of new applications made during the year for patents, etc., was 40,575, being nearly 5,000 more than any previous year. The number of patents granted was 24,153. The cash receipts were \$1,281,728, the expenses \$1,052,955 leaving a surplus of 228,772, which was turned over to the treasury and applied to the credit of the patent fund, which has now reached the handsome figure of \$3,631,670. The commissioner calls the attention of Congress to several important subject on which immediate legislation is urgently needed.

ITEMS FROM BEYOND SEAS.

WITH a population of 2,323,000, Chili, S. A., has 600 flour mills, mostly of the old-fashioned, low-grinding kind.

THE largest flour mill in Sweden is that of Messrs. Holmberg & Moller at Stockholm. The position of the mill is excellent; ocean steamers can discharge alongside, by means of elevators and carrying bands. The motive power is furnished by a steam engine of 750 h.p. with 4 boilers, while a 40 h.p. engine drives the elec-

tric light. The grain silos are 50 in number, holding 1,000 qnts. each, or in all about 24,000 qrs. The system of milling is most modern and entirely automatic, and is able to treat rye as well as wheat. The mill contains 52 pairs of rolls, 8 pairs of stones, 32 centrifugals, and a large number of purifiers.—*Miller's Gazette*.

Two leading Australian journals take somewhat divergent views of the recent harvest in the Island-Continent. The *Sydney Herald* is optimistic, observing that "seldom if ever has a year opened more favorably than has the present one. The stations though stocked to their full capacity, seem capable of providing food for the year. The farmers are reaping, or have reaped, the largest crop of wheat ever grown in the colony." The *South Australian Register*, which is more prosaic in its view of affairs, but which gives us figures, puts the yield at 9½ bushels to the acre, and credits the colony with a net surplus of four hundred thousand tons. The loss from red rust is put at the very high figure of £1,500,000 for South Australia, and it is added that "accounts from Victoria, the Southern Districts of New South Wales, and also from Tasmania, speak of the ravage and loss inflicted by this scourge." Australia is now shipping wheat to the United Kingdom at the rate of about 50,000 qrs. a week.

CHEMICAL PRINCIPLES IN BOILERS.

In the manufacture of boilers, according to a recent writer, the observance of certain chemical principles in respect to the metal employed is an essential consideration. Thus, a metal with high conductive properties should be preferred to one possessing it in a lesser degree; the thickness of the sheet should not be excessive; the polish of the exterior surface should be very slight, and, if it is desired to prevent the heat from radiating from the surface of the boiler or steam cylinder, they should be covered with some poor conductor like wood, charcoal, earthy matter, felt, etc., and then by some high reflector like polished iron, copper or brass. It is known that, when the heat-rays from any source of heat strike a body, one of three things may follow, either they penetrate into the mass, and are absorbed, or they pass through it, or they are stopped at the surface without penetrating, and are either reflected back in the direction whence they came, or, by making the angle of coincidence equal to the angle of reflection, pass off in an oblique direction. Polished surfaces and those with a clean color are usually the ones that reflect heat with the least amount of absorption, and of these, mercury stands in the front rank, and brass comes next, while tin, steel and lead are the reflectors, having only three-quarters the efficiency of brass. White reflects, while dark and dull colors absorb heat, as do also wood and earthy substances. These properties, whether radiating, ab-

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sorbing or reflecting, have, therefore, important practical relations to the choice of iron for boilers.

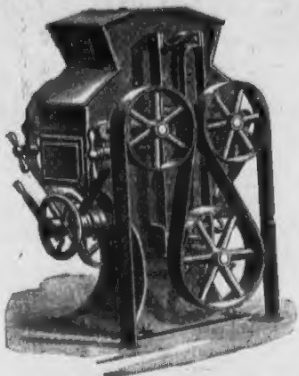
IRON WAGON ROADS.—In the Pennsylvania Legislature the improvement of the highways of that State has received considerable consideration, "and an iron track, rather than one of other materials, recommended by H. Neidig, a mechanical engineer, is apparently regarded with favor." He says: "An iron track, somewhat analogous to a street car track, must be provided for the wheels. This may be an iron bar, 6 or 8 inches, flat on the under and slightly concave on the upper surface. It is not necessary to do much grading; the team travels between the rails, and this space may be cobbled, graveled or cindered, or left unimproved, as the main thing has been secured—a roadway for the wheels. Such a road is a tremendous factor in its own construction, as a good track is at once secured to transport material on, and as to cost it is considerably less than either plank, stone or gravel. On no other kind of road can loads be hauled so large or so rapidly, and it can be shown that as a toll road, at only a moderate charge, from 15 to 25 per cent. per annum can be realized on cost, clear of the expense of wear and tear.

RECENT PUBLICATIONS.

It is said that a literary form almost wholly new to English literature will be introduced in a volume which Messrs. Harper & Brothers have in press for early publication. The book is a collection of examples of a striking species of composition carefully selected and translated from the French. This literary form has of late years been carried to a high degree of development in France, but it has not as yet been naturalized in other countries, except to a certain extent in Russia. The volume will be illustrated from 150 drawings, by H. W. McViekar, after the French manner—or rather, after his own inimitable manner.

ALPHONSE DAUDET, in a recent conversation told how he had been led to write his new story, "Port Tarascon: the Last Adventures of the illustrious Tartarin." Henry James translation is to begin in the June Harper. "I love Tartarin," said M. Daudet. "Perhaps I would have let him rest in his lovely town for some time to come, had not a wholly personal consideration encouraged me to start him again on his adventures. The past year has been a hard one for me; I have suffered a great deal; and as I was seeking for a distraction from my sufferings—for one of those tasks that absorb one, and make one forget physical pain—I thought of Tartarin. Pascal forgot his his neuralgia in working at mathematics; I have forgotten my rheumatism in the company of Tartarin. The Tarasconian hero is perhaps indebted to me for his fame; I am indebted to him for repose, and for helping me to forget my sufferings. Ought I not to feel beholden to him?"

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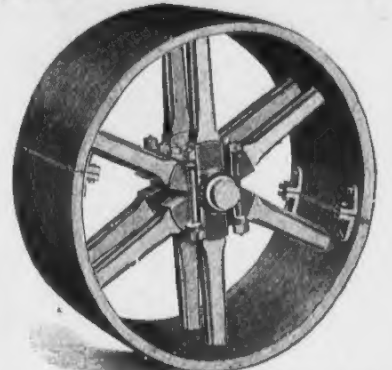
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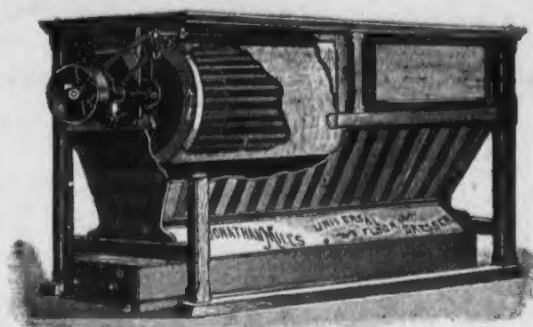
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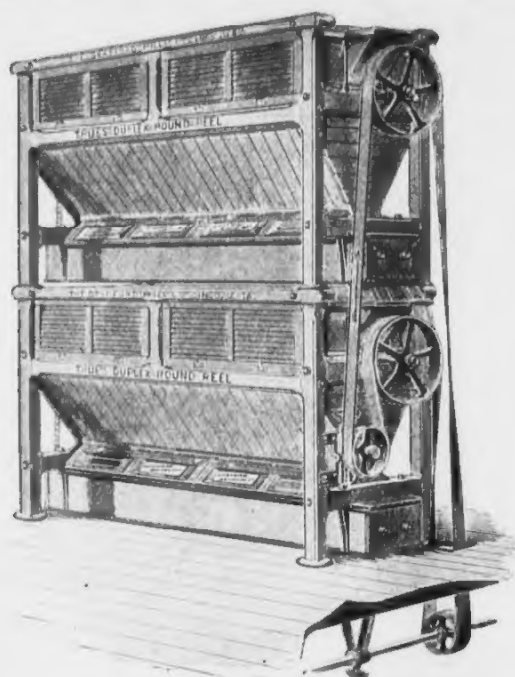
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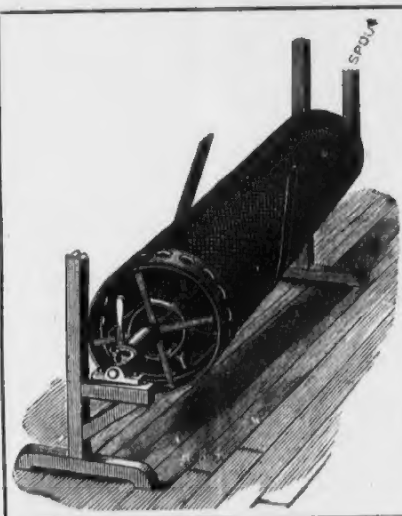
Contractors for Complete Roller Mills on the Short, Medium or Long System

ROLLS RE-GROUND AND RE-CORRUGATED.

⇒ WRITE FOR CATALOGUE AND ESTIMATES. ⇐

NOTE THIS!

The suit brought by Wm. E. Lee, of Long Prairie, Minn., against C. A. Pillsbury & Co., for infringement of a cockle separator patent which he controls, was tried in the United States Circuit Court at St. Paul last week. A verdict of \$1,500 was given in favor of the complainant.—NORTHWESTERN MILLER, Feb. 28.



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Which is licensed under Lee's patent, the validity of which was shown in the suit aforesaid.

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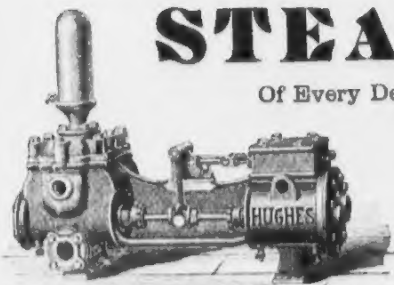
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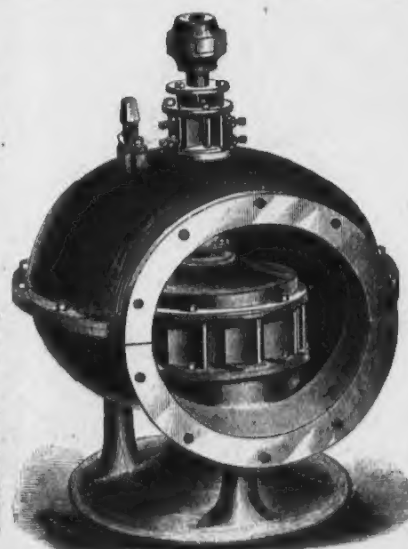
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